The Analysts Journal

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THE NATIONAL FEDERATION OF FINANCIAL ANALYSTS SOCIETIES

tradition of service

The nation's largest independent telephone system

▪

Serving growing communities in 21 states

▪

Handling over 8 million calls daily

In the telephone industry, Nature is not always friendly.

To build the lines that today reach over 5 million miles, General Telephone spanned mountains, rivers, forests. Once built, those lines must be kept open despite storm, flood, ice, snow . . .

But whatever the cost, the communication vital to the progress and prosperity of millions must be maintained.

Dependability is a telephone tradition.

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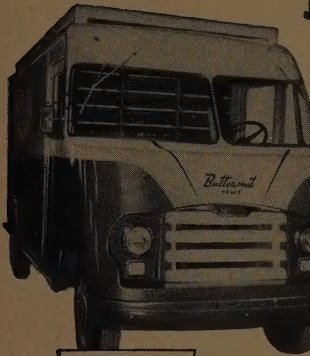
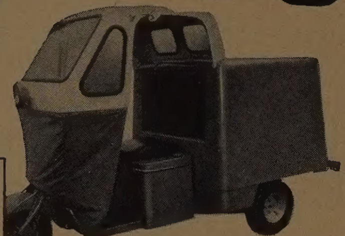
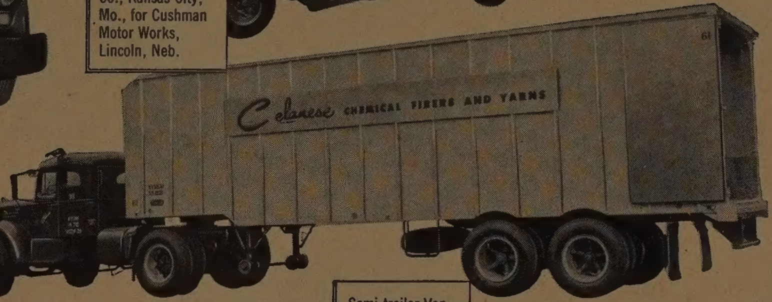


Panel Delivery Truck—Built by General Body Manufacturing Co., Kansas City, Mo.



Delivery Scooter—Built by General Body Manufacturing Co., Kansas City, Mo., for Cushman Motor Works, Lincoln, Neb.



Semi-trailer Van—Panel construction. Translucent roof panels. Built by Strick Co., Philadelphia, Pa.

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Looking at the future

A Forester is a key man in our economy.

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1955 is the 50th Anniversary of the U. S. Forest Service, with which we have worked for half a century on behalf of a common cause: Forests for the Future.

CROWN ZELLERBACH

San Francisco 19

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From General Electric's ANNUAL REPORT, out now:

5 Promising Progress Developments of 1954

ATOMIC REACTORS FOR RESEARCH

Peacetime use of the atom is closer. Small, low-powered reactors can now be supplied by General Electric, subject to applicable Atomic Energy Commission regulations, for educational, industrial and medical use. For this, and other news of atomic energy, see Page 11 of the Annual Report.

New principles in jet engines

General Electric engineers have designed and built a more powerful, high-efficiency jet engine on an entirely new set of principles, resulting in outstanding 1954 jet-engine progress. You'll find a discussion of this and other products made by General Electric for our national defense on Page 16 of the Report.

Computers, automation set new productivity pattern

General Electric is automating materials handling even for large "special order" equipment and is exploring new applications of computers. See Annual Report, Pages 8-9.

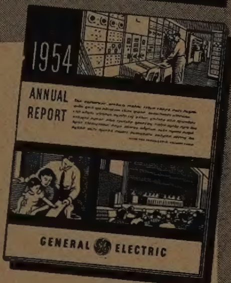
Mass production of transistors

General Electric's Electronics Division is now applying new techniques for mass-producing transistors. This is one of the outstanding examples of progress in research and advanced development described in the Annual Report, Pages 7 to 10.

Share owners reach 295,945

The number of General Electric share owners hit a new high in 1954. For a discussion of two big reasons behind the increase, see Page 2.

For your free copy



of the Annual Report with more details of General Electric progress and prospects, write Dept. 111-M1, Schenectady, N. Y. If you own General Electric shares held in the name of a broker — or in a nominee name of a bank or trust company — write to Dept. 111-Z2, and we will mail you regularly all share owner publications.

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The Analysts Journal

MAY
1955

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VOLUME 11
NUMBER 2

New York Hosts to Eighth Annual Convention National Federation of Financial Analysts Societies

Way back in 1888, an astute buyer of shares wrote: "The business of Wall Street requires long and close training in financial affairs." Since that day there has developed a group of students whose work embraces the study of industrial endeavors. Financial analysts appraise new industries, evaluate old corporations, and plan investments for large segments of the populace. These professional members of the National Federation of Financial Analysts Societies have become an authoritative organization. Their evolution since the time Henry Clews recognized the requisites of Wall Street workers does credit to his sagacity and their accomplishments.

Their growth has been comparable to that of the Nation's stock exchanges, and banks which have achieved success beyond all expectations. Men of vision in New York in 1792 who left their buttonwood tree trading and gathered at Corre's Hotel to "enter into the Purchase and Sale of Public Stock" soon found these quarters inadequate and turned to trading space in the Tontine Coffee House and its Merchants Exchange. By 1817, a new organization called The New York Stock Exchange came into being. Since then there have been shifts of buildings and appellations, but none of purpose. The New York Stock Exchange has served long and well. Sometimes these efforts were appreciated; at other times too much seemed to be expected. In Mr. Stedman's great book of 1903, one reads: "A Stock Exchange like any other human institution has its uses and abuses." He found them to be "peculiarly subject to public observation and comment."

New York and its industries and financial establishments are constantly expanding. Visitors to the Convention will learn where banking in the United States had its incipient recognition at a Convention

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Editorial communications and articles for publication should be addressed to Helen Slade, managing editor, 400 East 57 Street, New York 22, N. Y. Neither the Federation nor the editorial staff is responsible for the facts or opinions contained in articles appearing in The Analysts Journal.

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in New York in 1777. They will see the Bank of New York — the brain child of Alexander Hamilton, which was chartered for service in 1791 and became the second bank in the United States, the first for the City of New York. As they look at its uptown branch done in the manner of the early city architecture, and at the grandeur of modern New York banks, some may recall that Silas Stilwell depicted banks as the "handmaids of commerce," and they will rejoice that his definition has been achieved.

When the visiting analysts watch stock trading on the New York exchanges, they are likely to remember that trading in railroad shares began with Mohawk and Hudson in 1830. "This was the first railway security that had this distinction." It was merged with New York Central in 1869. It was through consolidation that rails took their place in investment opportunities. The mergers of the 1850's brought widespread interest to larger corporations.

Gottscho-Schleisner

Facade of New York Stock Exchange

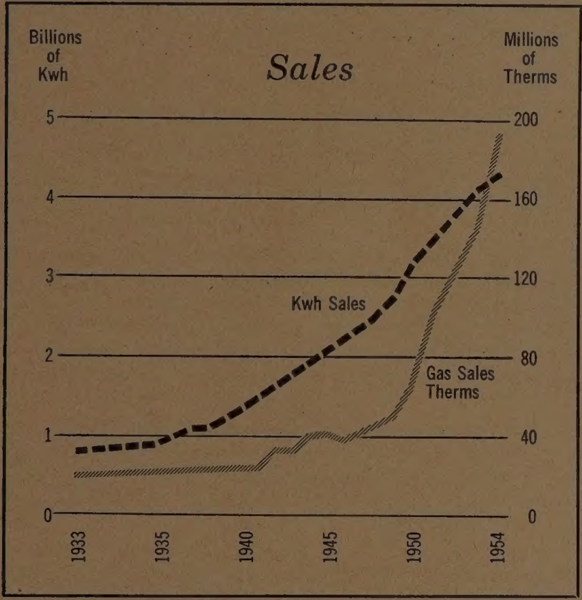
Our traveling members may go to parts of New York, or some of its islands, bought and developed by funds obtained from lotteries. Buyers of merchandise at New York's large department stores will think of their origin in the Ladies Retail Auction Room, where shopping took place in 1816. By 1842, shops on Broadway sold every luxury acceptable by the standards of the day, but entirely eclipsed by what New York stores now offer. Many are certain to visit the New York Public Library, in whose economic division analysts from all parts of the world have gathered to find data unprocurable elsewhere. On its shelves are books and documents from whose pages ideas revealing future paths to prosperity have been discovered.

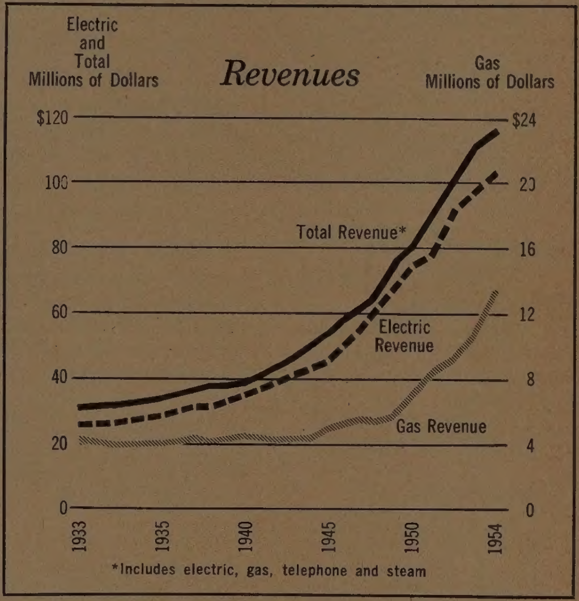
The Eighth Annual Convention of the National Federation of Financial Analysts Societies, to be held in New York, will attract numbers of members. The New York Society of Security Analysts are to be the hosts. They have many and varied plans and arrangements for the benefit of all attending. These include forums, field trips, and dinners with speakers of top rank.

New York members trust all will benefit from knowledge gained. They, two thousand strong, desire to be at the service of those from afar, and hope this Convention will add to profitable and happy memories.

H. S.

Diversification brings Northern States Power Company 21 straight years of revenue growth





*Includes electric, gas, telephone and steam

Revenues of Northern States Power Company, as presently constituted, have climbed steadily for 21 straight years. Underlying this growth is an unusually well-balanced diversification in the classes of customers we serve. Today 42% of NSP's electric revenues stem from residential and rural sales, while this proportion was 39% ten years ago. This, of course, is highly desirable revenue, the least sensitive to business fluctuations. The remainder of our electric revenue, as shown in the bar chart below, comes from a healthy balance of industrial, commercial and other sales. And gas sales and revenues, too, are climbing as more natural gas becomes available in our territory. Thus, independent of any single industry or group of customers, NSP grows stronger year by year. Have your secretary write for our Annual Report.

Residential-Rural sales produce 42% of NSP's electric revenue

$43.5 (millions of dollars) from Residential and Rural sales. . . 42.2%

$24.3 from Small Light and Power sales 23.5%

$23.1 from Industrial sales 22.4%

$7.4 from sales to Co-ops and Municipalities 7.2%

$4.8 from other sales 4.7%

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Serving a thriving area in Minnesota, Wisconsin and the Dakotas with electricity and gas

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BENJAMIN GRAHAM, author of *The Intelligent Investor, Storage and Stability, Security Analysis,* and other books, is president of Graham-Newman Corporation. He has been expert witness in many important Government and valuation cases and is a lecturer of distinction.

Partner in the investment management firm of Dodge & Cox, RICHARD W. LAMBOURNE is also a lecturer and instructor in investments and financial research for Stanford Graduate School of Business. Previously he was with Guaranty Trust Company of New York and Walker Bank & Trust Company of Salt Lake City. A past President of the National Federation, he is now on their Executive Committee.

JAMES F. HUGHES, one of Wall Street's best-known analysts, has taught and lectured in many parts of the country. As first assistant to Leonard Ayres, he achieved a far-flung reputation by original work in market movements. His contribution on the importance of bank figures started an entirely new concept concerning their worth. He is now associated with the firm of Auchincloss, Parker & Redpath, and is consultant to Shearson, Hammill and other firms.

LAWRENCE R. KAHN is vice-president and head of research for A. G. Becker & Company. Before joining that firm he headed the research department of E. F. Hutton & Company. An economist, writer, and lecturer, he is an authority on retail trade and utilities and has made profound studies of utilities and chemicals.

JULIUS SHISKIN is chief economic statistician for the Bureau of the Census. An economist of note, he is the writer of many published studies made for the Government and for various organizations.

GUSTAVE SIMONS is an attorney and vice-president and general counsel of Creative Age Corporation, whose business is financial planning. He has specialized in capital formation problems of the modern corporation. He is an expert in tax matters and has found many advantages in the tax law that were generally unrecognized.

A certified public accountant, C. D. McDANIEL joined the staff of Arthur Anderson & Company, independent public accountants, in 1933, and became a partner in 1945. He is located in the Chicago office of that firm.

J. FRED WESTON has been associate professor of finance in the school of business administration, University of California, Los Angeles, since 1949. He has been associate editor of the *Journal of Finance* since 1948. He is author of *The Role of Mergers in the Growth of Large Firms,* published in 1953 by the University of California Press. He has written numerous articles for economic and business journals.

WILLIAM BERANEK is assistant professor of finance in the school of industrial management of Massachusetts Institute of Technology. He was formerly instructor at the school of business administration at the University of California. He is the author of several articles on finance.

A professor of taxation at St. John's University school of law, and a lawyer and certified public accountant, BENJAMIN HARROW has lectured during the past year on the new Internal Revenue Code at New York University Tax Institute, University of Denver, University of Virginia, and Northeastern University. He is author of *New York State Income and Franchise Taxes* and editor of the *Journal of Taxation.*

Authors

Chairman of the department of statistics at the school of business administration of the University of Buffalo, ZENON SZATROWSKI has had articles published in the *Journal of the American Statistical Association* and *Econometrica*, mainly on economic time-series analysis. He previously taught at the University of Oregon and Northwestern University and was on the staff of the Econometrics Institute in New York.

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Associate professor of finance in the school of business administration of the University of Michigan, DOUGLAS A. HAYES is the author of numerous articles on business and finance. He served as consultant to the Treasury Department on monetary and debt management policies in 1951–52, and was previously public accountant for Price, Waterhouse & Company and research associate with Investment Counsel, Incorporated, of Detroit.

In charge of analysis of transportation and related industry securities, KENNETH C. BAUDER has been in the trust investments division of the Girard Trust Corn Exchange Bank, Philadelphia, for eight years. He is a graduate of Lehigh University.

For the past five years SAMUEL BALLEN has been manager of the petroleum department of Wertheim & Company, Dallas, which department supervises studies of petroleum securities, as well as the employment of capital directly in the purchase of petroleum properties. He was formerly with Lehman Brothers and has studied banking and finance at College of City of New York and New York University and petroleum technology at Columbia and Oklahoma Universities.

Professor of economics at the University of Southern California since 1946, ROY L. GARIS has taught at many universities and for twenty-five years was a member of the Vanderbilt University faculty. He was author of the basic quota provision in the Immigration Act of 1924, set up the social security system in Tennessee, and did research and writing for Congressional committees in the fields of immigration and money. A well-known speaker on television and radio forums, he is also the author of many magazine articles and books.

EVERETT DOMINICK is a member of the New York Society of Security Analysts and a financial writer. He was with the Navy in World War I and has an M.A. in economics from Yale and a BCS from New York University.

JOHN P. BRODERICK is a partner in the firm of Broderick & Coleman, financial public relations and advertising consultants. Mr. Broderick, for several years, was one of the editors of the *Wall Street Journal* and has contributed many articles to *Barron's* and other magazines. He was formerly president of the New York Financial Writers Association and of the New York chapter, Public Relations Society of America.

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COMPLETE TELEPHONE SERVICE. This "general store" displays some of the many kinds of equipment to meet different telephone needs. The exhibit shows the advantages of complete telephone service for home and business. Another new feature is the *Airlight* Outdoor booth.

A Year of Progress and of New Things in Telephone Service

Some interesting highlights from the 1954 Annual Report of A. T. & T.

To meet the increasing communications needs of the public, business and the nation, the Bell System spent $1.4 billion for new and improved facilities in 1954.

1,967,000 telephones were added, compared with 1,900,000 in 1953. Long Distance calling set new records.

A million more telephones were changed to dial. Eighty-four per cent of all Bell telephones are now dial-operated.

Operators now dial more than half of all Long Distance calls straight through to the distant number. People in a number of places can also dial many of their distant calls.

The average time for completing out-of-town calls dropped to 1.4 minutes, and 97 out of every 100 calls went through while the calling party stayed on the line. By these and other measures service was the best on record.

We started work on the first undersea voice cable to Europe, equipped our main TV network routes to carry color programs and invented a device to convert sunlight directly into electricity.

The Western Electric Company and Bell Telephone Laboratories, our manufacturing and research organizations, undertook major new defense assignments at the Government's request.

The prospect ahead is for another busy year, and for even greater progress toward meeting and anticipating the wants of telephone users.

We'll be glad to send you a copy of the Annual Report . . . American Telephone and Telegraph Company, 195 Broadway, New York 7, N. Y. EXchange 3-9800, Extension 2151.

S. Whitney Landon, Secretary
American Telephone and Telegraph Company
195 Broadway, New York 7, N. Y.

Please send me a copy of the
1954 A. T. & T. Annual Report.

Name ____________________

Address ____________________

AL

Words of Wisdom Valuable to Analysts from a Letter by Bernard M. Baruch

SOME YEARS AGO, one of our members suffered croup or colic or some other ailment of childhood. The doctor in charge not only effected a rapid cure, but his inspiring manner left an ineradicable impression. His fond accounting of his son's attainments as an economist opened in the patient's mind vistas of curiosities. This is one of the reasons we had the temerity to ask Dr. Baruch's distinguished son for some thoughts which would be of use to the intelligent analyst. The following correspondence resulted. We know you will profit by it.

Personal

Kingstree, South Carolina
January 26, 1955

My dear —— ——

A financial analyst must have a broader horizon today than ever. There are so many things that he has to take into consideration other than financing, manufacturing, production, and distribution. The Government is the most important factor, and governmental action is entirely dominated by those who happen for the moment to be in control.

An analyst must think of what effect war or peace or "cold war" will have. In addition, an analyst has got to be a psychologist. He must know the history of the world, and especially the madnesses and the delusions that have overtaken the world and from which it recovers, not as a mass but only individual by individual. He must think of the extreme right and extreme left, and the endeavors of society which they attempt to regulate or direct, and the hopes and fears of the individuals which compose it.

The National Federation of Financial Analysts, which seems to be able to call before it the leaders of industry and get from them what they are interested in doing, has been a great advance over what existed in my active days.

There is one thing that no one wants to face and that is discipline which may lessen the comforts of the moment or what they term initiative or individual freedom. In wartime that is necessary; yet, it is very grudgingly given and not well observed—nor are those who break the rules and regulations punished.

The lack of foresight in carrying out the proper regulations in war on our economic body, when we take young men and send them all over the world to die or to return a mere shadow of themselves or to find the economy to which they had access not open to them and their places filled by others, has never been made to bear its fair share and to keep every segment in the same relation, one to the other. That has resulted in inflation and placing the economy on stilts.

Our interests abroad and what effect they will have upon us must also occupy the minds of the analysts.

I have tried to bring to the attention of the students of my Alma Mater some of the views I had regarding these problems in a little volume of lectures which has been published under the title: "A Philosophy for Our Time."

I would not care to have this letter used as an article, but it gives you some of the thoughts that came to my mind on the receipt of your letter.

The recollections you have of my beloved parents have brought back many happy memories.

Sincerely,

BMBaruch

* * *

February 6, 1955

Mr. Bernard M. Baruch
Kingstree, South Carolina

Dear Mr. Baruch:

Thank you so much for your letter full of thoughts necessary for every analyst.

I have gained from the ideas you presented, and I would be selfish indeed were I not anxious to share these words of wisdom with my fellow members. Although I certainly do not want to press you, if at any time you might reconsider and permit me to print the letter in the JOURNAL, we shall all be grateful. It would be a fine contribution to the advancement of all financial thinking.

Sincerely,

—— ——

* * *

Kingstree, South Carolina
February 7, 1955

My dear —— ——

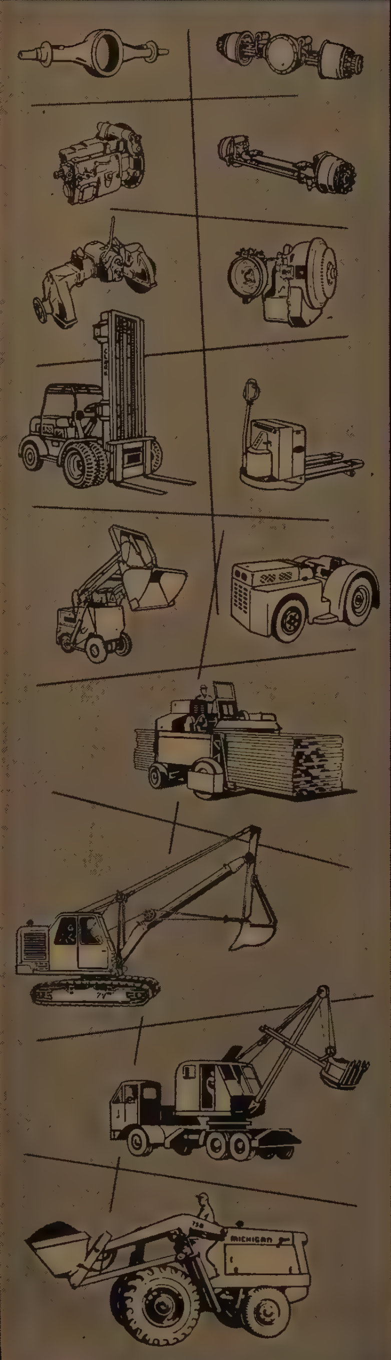
All right, you can print it, but print it in just the way it happened.

Very truly yours,
B. M. BARUCH

CLARK EQUIPMENT COMPANY

Condensed Financial Report

December 31, 1954



The Company has mailed to all shareholders as of February 16, 1955, a preliminary report containing the financial statements for the year ended December 31, 1954. The financial report and operating particulars presented here in condensed form have been prepared by the company from the more detailed financial statements certified by the company's public accountants, Price Waterhouse & Co. Copies of the preliminary report to shareholders are available upon request sent to the Secretary at the home office of the company at Buchanan, Michigan.

CLARK EQUIPMENT COMPANY

President

Sales, Income, and Other Particulars for the Calendar Years 1954 and 1953

	1954	1953
SALES, before discounts	$101,983,120	$122,265,498
Income before federal taxes	$ 11,310,986	$ 12,677,230
Provision for federal taxes on income	5,600,000	7,500,000
NET INCOME for the year	$ 5,710,986	$ 5,177,230
DIVIDENDS PAID IN CASH:		
Common stock—$3.00 per share	$ 3,357,783	$ 3,261,631
Preferred stock—$5.00 per share	88,026	89,630
TOTAL DIVIDENDS	$ 3,445,809	$ 3,351,261
EARNINGS—per share of common stock outstanding (after dividends paid to preferred shareholders)	$5.02	$4.55

Balance Sheet—December 31, 1954

ASSETS

CURRENT ASSETS:		
Cash	$12,613,253	
Accounts Receivable	9,191,341	
Inventories—at lower of cost or market	24,222,825	
Prepaid expenses	215,022	$46,242,441
INVESTMENTS, ETC.		1,707,897
LAND, BUILDINGS, MACHINERY, ETC.	$34,793,277	
Less—Depreciation and amortization	14,497,774	20,295,503
		$68,245,841

LIABILITIES

CURRENT LIABILITIES		$14,695,692
3¾% NOTE PAYABLE (due in annual installments of $750,000 from 1956 to 1965, inclusive, and balance on August 1, 1966)		9,750,000
CAPITAL STOCK AND RETAINED EARNINGS:		
Preferred 5% cumulative—par value $100 per share (17,564 shares)	$ 1,756,400	
Common—par value $20 per share (1,136,505 shares)	22,730,100	
Capital in excess of par value of shares	8,043,770	
Earnings retained and used in the business	11,454,479	
	$43,984,749	
Less—Cost of 17,244 common shares held in treasury	184,600	43,800,149
		$68,245,841

Some Structural Relationships Bearing Upon Full Employment

BENJAMIN GRAHAM

THE FULL-EMPLOYMENT COMMITMENT, which was greeted skeptically by many of us in 1946, seems now on the way to becoming an accepted premise of politics and economics. Both major parties acknowledge Government's responsibility for preventing continued mass unemployment.

Our earlier concern as to how this engagement can be fulfilled is no longer so manifest. The excellent employment record of the past thirteen years—and particularly the resistance shown by our economy to the depressive influences of 1954 — has given American business a new confidence in its ability to keep forging ahead without nasty setbacks of the old-fashioned kind.

This optimistic thesis might be restated by some in different terms, but with the same consequences, namely: Either business will expand indefinitely at the accelerating rate required to maintain full employment, or else the Administration (of either party) will intervene as massively as is necessary to rescue us from any tailspin. This view would hold, in other words, that active business and nearly full employment are guaranteed; the only question is whether we shall have them with or without further inflation. It is probable that the bull market of 1953–55 has been reflecting the gradual permeation of investors' minds by this revolutionary conception of the future.

Before a security analyst or other economic student decides to accept or reject this crucial hypothesis, he might do well to ponder over some long-term economic relationships, which have had a significant bearing on the question of full employment in the past. We have now available reasonably dependable aggregate figures, covering the four basic factors that together determine changes in the number of unemployed: (1) productivity, (2) per-capita product (or consumption), (3) hours of work, (4) labor force. These four elements are mathematically joined in the following equation:

Unemployment = labor force — gross national product (consumption) — [GNP per man-hour (productivity) × average annual hours per worker]

In this article I propose to discuss some rather striking arithmetical relationships, which have existed among the four enumerated factors in the past, and then to compare the record with a recent authoritative projection to the year 1965. The source of this projection and of most of our statistical material is a recent study by the staff of the (Congressional) Joint Committee on the Economic Report, entitled "Potential Economic Growth of the United States during the Next Decade" (October 1954).

For our purpose, it has been convenient to examine the percentage changes in the four factors over four approximately equal intervals between 1900 and 1953, namely: 1913 versus 1900, 1927 versus 1913, 1940–41 average versus 1927, and 1953 versus 1940–41. None of the years taken marked a depression period, as measured by the general business index of the Cleveland Trust Company. However, 1953 would stand out as a year of business boom, whereas the other reference years show activity moderately above or below normal, as follows:

1900	+ 3 %
1913	+ 4½
1927	+ 3
1940–41	− 1½
1953	+15½

It follows from our previously stated formula that the maintenance of full employment depends on the interaction of three basic arithmetical relationships:

1. *The Productivity-Product Ratio.* This is the ratio of the *rate of increase* in productivity (GNP per man-hour) on the one hand and in consumption or living standard (GNP per capita) on the other. It produces intermediate result I, which is the change in man-hours required (worked) per unit of population.

2. *The Change in Hours of Work.* This is a composite quotient, found by dividing total man-hours worked by the number of employed. Combined with result I, it produces intermediate result II, which is the change in workers needed (employed) per unit of population.

3. *The Change in the Labor Force.* The significant figure here is the labor force in relation to population. Combined with result II, it produces final result III, which is the change in unemployment per unit of population.

Our Table 1 sets forth the basic data used in the study and some resultant figures of importance. In Table 2, the relationships previously discussed are developed as percentage changes for each of the four intervals selected. In Table 3, approximate average percentages are worked out, and these are compared in turn with the projected changes for the twelve years 1953–65 as estimated in the staff report.

The reader should be warned that our calculations have two unusual characteristics, which we believe will make them more meaningful. Our per-capita figures are based on "adjusted population," which counts children under 14 as half-persons. The purpose of this device is to allow in our comparisons for the significant decline in the proportion of such children, for example, from 32.3% of total population in 1900 to 23.1% in 1940.

Table 1. Basic Economic Data Used

	1900	1913	1927	Average 1940-41	1953	Projection 1965[*]
Population, millions	76.1	97.2	119.0	132.8	159.6	190.0
Adjusted population,[+] millions	63.8	82.7	102.1	117.5	138.1	163.5
Gross natl. product in 1953 dollars, billions	75.6	113.1	160.5	220.1	364.9	535.0
Avg. work week, hours	58.0	51.4	48.1	42.9	40.6	37.1
Working force, millions	29.1	38.7	46.9	56.9	67.0	79.0
Employment, millions	27.7	37.6	45.0	50.0	65.5	76.0
Unemployment, millions	1.4	1.1	1.9	6.9	1.5	3.0
Total man-hours worked, billions	83.5	100.4	112.6	111.5	138.2	146.6
Productivity, GNP per man-hour, 1953 dollars	0.905	1.126	1.461	1.974	2.640	3.649
Per Capita Adjusted						
GNP, 1953 dollars	1,185	1,367	1,570	1,873	2,643	3,272
Man-hours worked	1,308	1,214	1,103	949	1,001	897
Labor force	0.456	0.468	0.460	0.484	0.485	0.483
Employment	0.434	0.454	0.442	0.426	0.474	0.465
Unemployment	0.021	0.14	0.18	0.058	0.011	0.018

[*] Joint Committee Staff Report, October 1954.

[+] Children under 14 counted as one half.

Second, our percentage changes are related to the "higher figure"—which means, for example, that an advance from 100 to 200 is a rise of 50 "% h," just as a decline from 200 to 100 is a fall of 50%. This technique has interesting advantages, particularly in successive comparisons.

When we examine the percentage changes shown in the various periods we are impressed by certain interesting structural relationships, as follows:

1. Productivity has advanced throughout the 53-year period at an accelerating rate. Since increased productivity by itself—i.e., if not offset by other factors—reduces the need for workers, this aspect of the employment picture has tended to present increasing difficulties.

2. Per-capita GNP, or consumption, has also increased in each period, at a fairly constant rate. Although the big upsurge in 1940–53 is most encouraging, it is exceptional in its magnitude. A good deal of it is due to the rise in the level of business, from slightly below normal in 1940–41 to a record boom activity in 1953.

3. The figures important to employment are not productivity changes or consumption changes, considered separately, but their *comparative* rates of growth—what I have called the productivity-product ratio. In three periods out of the four, productivity increased faster than product (or consumption), yielding a "productivity excess." In a similar study, published in 1947, covering a greater variety of periods, I found a "productivity excess" in all intervals between years of approximately similar business activity.*

Where there is a productivity excess, the necessary result is to reduce man-hours worked per population unit. Between 1900 and 1953, this figure fell from 1,308 hours to 1,001 hours, per-capita adjusted. If the work week had not been shortened, the consequence would have been a decline of 23% in per-capita employment, producing some 16 million more unemployed in 1953.

4. The important offset to the productivity excess has, of course, been shorter hours. The work week has declined in every period, but at a somewhat irregular rate. There is no indication that hours of work have been consciously adjusted downward in an amount calculated to maintain the level of employment in good times, but the actual results have not been too far from such an objective.

The important question here is whether the productivity excess is a structural characteristic of our American economy. If there is a built-in tendency for productivity to increase faster than consumption—and the half-century figures point strongly to that conclusion—then the gradual reduction of the work week (or, better, the work year) becomes mathematically necessary to prevent a growth in unemployment.

5. Changes in labor force relative to population appear to be independent of other factors, and they have an independent effect on unemployment. Over the past fifty-three years, the number of workers has increased at a slightly greater rate than the population, that is, from 407 to 420 per 1,000 unadjusted, and from 456 to 485 per 1,000 adjusted. This difference alone, if not offset by other factors, would have increased 1953 unemployment by several millions.

There is something perverse about this expansion in our labor force. One might have expected that the tremendous advance in scale of living would have reflected itself in some decline in the working portion of our population. (Actually the influx of women into jobs has more than offset both the elimination of child labor and the trend toward earlier retirement). The embarrassing aspect of the change in labor force is that it was concentrated al-

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*See Benjamin Graham, "National Productivity: Its Relationship to Unemployment in Prosperity," *American Economic Review,* volume 37, May 1947, pages 384-396.

most entirely in the 1927–40 period, when it greatly aggravated the unemployment situation produced by the productivity excess.

6. Finally we must recognize that unemployment—the final and key figure—represents at bottom a *marginal* relationship among the four determining factors of *(a)* increasing productivity, *(b)* increasing consumption, *(c)* falling hours of work, and *(d)* variations in the labor force. The productivity increase, taken by itself, could create a serious unemployment problem in only two years; the average productivity excess would create such a problem in six years; a perverse change in the labor force could presumably do so in twelve years.

From the theoretical standpoint, at least, this is a major objection to the full-employment commitment. It could conceivably require strenuous governmental intervention in the economy when a relatively slight imbalance appears between the major factors determining employment and unemployment.

This fact is pointed up by the developments between 1952 and 1954. (The data are not given in our tables.) In these two years, real product per capita remained about unchanged, but average unemployment nearly doubled, rising from 1,673,000 to 3,200,000. The controlling elements were a rise of 4.4% in productivity, offset in part by declines of 1% each in hours of work and relative working force.

IMPLICATIONS FOR THE FUTURE

The projections into 1965, made by the staff of the Joint Committee on the Economic Report, have an interesting bearing on the previous analysis—and possibly vice-versa. Their study concluded that the economy could reach a satisfactory balance ten years hence, on the basis of a gross national product of $535 billion—47% greater than in 1953—and with no change in the price level.

But to achieve this balance, in accordance with the model presented in their study, three structural requirements will have to be met. To begin with, the staff points out, the amount of disposable income *saved* will have to be reduced from a recent 8 to 6%, in order to create the necessary demand for consumer goods. Second, nonmilitary expenditures by all sections of Government will have to expand much more rapidly than GNP itself. Finally, there must be a substantial further shortening of the work week; although not saying so explicitly, the discussion indicates that the alternative to such shorter hours is likely to be an inadmissible level of unemployment.

In brief, the conditions require that people work less and save less, and that civil government spend more, than at the 1953 rate. Topsy-turvy as this may sound, it is an authentic reflection of our twentieth century economy of abundance, which in turn is founded on our ever-increasing productivity.

We have worked out the percentage changes between 1953 and 1965, implied in the staff's projection, for the factors governing the level of unemployment. The figures appear in Table 3.

It will be noted that productivity is estimated to increase at a somewhat faster rate than in 1940–41 to 1953. However, the advance in consumption (per-capita GNP) is projected at a much lower rate than in 1940–41 to 1953. It is set, in fact, at about 10% more than the annual rate for the entire period 1900–53. The result is a substantial productivity excess (10.4%), and a corresponding fall in the man-hours required per capita.

The decline in the work week is anticipated (or stipulated) to be almost exactly at the average rate for the half-century. The composite result of the three factors is a decline of just under 2% in per-capita employment, one quarter of which is offset by a minor shrinkage in relative labor force. The final calculation shows an increase in unemployment from 11 to 18 per 1,000 population, adjusted.

This is, of course, a very encouraging projection. (But the staff warns us that it presents rather a picture of how maximum economic growth *may* be achieved than predictions of actual developments.) It is certainly not Utopian, for it appears to be quite closely in line with the secular growth of our economy, as analyzed in our four-period comparisons.

But, even if the estimates impress us as reasonable, two caveats should be borne in mind by those studying the figures as a possible guide to investment and business decisions. The first is that these satisfactory twelve-year advances are not in themselves incompatible with a substantial interim setback. In each of the three periods during 1900–41 we had business depressions, although the

Table 2. Percentage Changes between Period Dates*

	1913 vs. 1900	1927 vs. 1913	1940-41 Avg. vs. 1927	1953 vs. 1940-41 Avg.
Productivity, GNP per man-hour	+19.6% h	+22.9% h	+26.0% h	+25.0% h
Product or consumption, GNP per capita adjusted	+13.4	+12.9	+16.2	+29.1
Man-hours worked[+]	- 7.2	- 9.3	-14.0	+ 5.2
Work week	-11.5	- 6.3	-10.8	- 5.4
Employment[+]	+ 4.6	- 2.9	- 3.6	+10.1
Labor force[+]	+ 2.8	- 1.7	+ 4.9	+ 0.2
Unemployment[+]	-38	+28	+69	-81

*Percentage increases are calculated against higher figure. See text.

[+] Per capita adjusted.

Table 3. Projected Changes 1953-65 versus Average Changes in the Past

	Approx. Avg. Change per Past Period in 1900-53*	Projected Change, 1965 vs. 1953
Productivity	+22% h	+27.5% h
Product or consumption+	+16½	+17.9
Man-hours worked+	- 6	-10.4
Work week	- 8	- 8.6
Employment+	+ 2	- 1.9
Labor force+	+ 1½	- 0.5
Unemployment+	-	+ 3.0

*Adjusted to 12 years.

+Per capita adjusted.

economy showed rather consistent growth between all the terminal years.

The prevention of a *cyclical* downturn, with resultant high unemployment, is a separate problem. Will the economy be able to resist depressive forces in the future as well as it did in 1953–54? I doubt whether our analysis, or that of the Joint Committee's staff, sheds any definitive light on this important question.

The second caveat brings us back to the marginal nature of the unemployment total. It would take a comparatively small adverse change in the first three of our controlling factors to change the final figure of unemployment from a fairly satisfactory to a problem-making figure. For example, if the work week should fall 2 hours instead of 3½, the arithmetical result would be to double the unemployment figure—i.e., to 6 million. Nor is it impossible that the fourth factor—labor force—may add substantially to difficulties created by the other elements.

The American economy has been doing remarkably well in recent years. But it would be premature to conclude that it is now both depression-proof and unemployment-proof. Nor are the two characteristics necessarily the same.

All data for 1913 and later years are taken from the Joint Committee's Report. Man-hours employed have been raised to allow for general Government employees, excluded in their figures. The 1900 data came from various sources, selected to accord most reasonably with the Joint Committee's series.

USE OF THE "PER CENT OF HIGH" CONVENTION

Percentage increases are calculated in this article against the higher or terminal figure. I have long believed that this convention is better suited to the work of economists and security analysts than the standard method of calculating percentage gains against the starting figure. I am emboldened to employ it here because of its use in a study published by the Department of Economic Affairs of the United Nations entitled "Instability in the Export Markets of Underdeveloped Countries" (1952). As pointed out in Appendix B of that paper, the "per cent of high" or "% h" convention (my designations) has several advantages over the standard method, namely:

1. By the "% h" method the series 100, 80, 100 shows a fall of 20%, followed by a rise of 20%, instead of the conventional (and troublesome) 20% fall and 25% rise.
2. A single rise is always under 100% h, corresponding to the maximum single decline (where positive numbers only are used).
3. In two series such as 10, 5, 8, 10 and 5, 10, 8, 5 the average absolute fluctuations are the same under the "% h" method, whereas they differ markedly under the standard method.

Note that "per cent of high" is recommended only for comparing changes between successive values. It is not applicable to calculating percentage of profit mortality and the like.

CUTTER Laboratories
Producers of fine biologicals and pharmaceuticals
SINCE 1897
80th DIVIDEND
The Board of Directors on March 14, 1955, declared a cash dividend for the first quarter of the year of 11¢ per share upon the Company's common capital stock. This dividend will be paid April 20, 1955 to shareholders of record April 11, 1955.
F. A. CUTTER, Secretary
BERKELEY, CALIFORNIA

UNITED FRUIT COMPANY
223rd
Consecutive Quarterly Dividend
A dividend of seventy-five cents per share on the capital stock of this Company has been declared payable April 15, 1955, to stockholders of record March 11, 1955.
EMERY N. LEONARD
Secretary and Treasurer
Boston, Mass., February 14, 1955

Another regular quarterly dividend of 25 cents per share has been declared by Daystrom, Inc. Checks will be mailed May 16th to shareholders of record April 27th.
DAYSTROM, INC.
ELIZABETH, N. J.
Electronics
Furniture
Printing Equipment

DREWRYS LIMITED U. S. A. INC.

SOUTH BEND, INDIANA

Highlights of 1954

SALES were the second highest in history—1,372,407 barrels, compared with the record 1,420,230 barrels sold in 1953 . . . Net dollar sales, after Federal and State excise taxes, reached a new high at $24,589,871. . . . We maintained our position as the nation's 15th largest brewer.

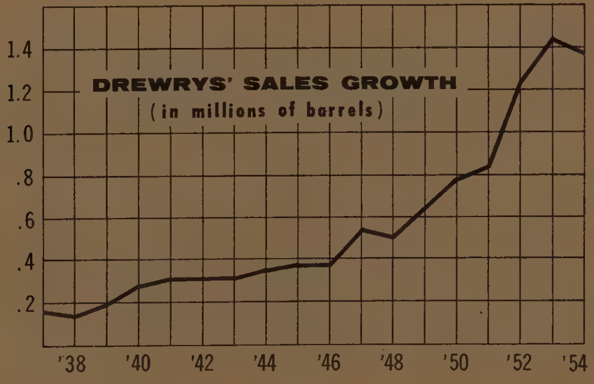
NET INCOME showed a gain for the third successive year, and reached a record high . . . EARNINGS PER COMMON SHARE were $2.46, compared with $2.28 last year.

DIVIDENDS to common shareholders again were increased . . . The annual dividend rate is now $1.60 per share.

PREFERRED STOCK, issued November 1951, was retired September 10, 1954 . . . leaving 601,812 common shares as the sole capital stock.

FINANCIAL POSITION continued strong . . . Property, plant and equipment at year-end equalled $5.02 per barrel of capacity . . . Book value of common rose to $14.75 per share from $13.96 a year earlier.

DREWRYS STOCK was listed on the "Big Board"—an important advantage to our nearly 3,000 shareholders.



OUR 1954 ANNUAL REPORT and other data about our operations are available on request to the company or our financial public relations counsel, Gartley & Associates, Inc., 68 William Street, New York 5, New York.

DREWRYS LIMITED U. S. A. INC. 1408 Elwood Avenue, South Bend 24, Ind.

Commercial Credit Reports

CONSOLIDATED net income of the Finance Companies, Insurance Companies and Manufacturing Companies from current operations, after payment of taxes, exceeded 24 million dollars—the largest in Commercial Credit's history. The volume of receivables acquired by the Finance Companies and the relative outstandings thereof show a reduction from 1953 as a result of the Company's policy of refining its motor retail and wholesale financing of cars and also from the reduction in sales of certain motor car manufacturers during 1954. However, during 1954 the Company made a substantial increase in financing cars of other manufacturers and thereby has obtained a greater diversification in its motor financing volume.

Net income per common share was $4.86 with some 408,245 more shares outstanding on December 31, 1954, as compared to December 31, 1953. The book value of the common shares has increased $12.85 during the past five years and on December 31, 1954, was $35.35. During this same five year period the Company paid dividends of $55,931,601 on its common stock and retained $51,371,781 in the business. Capital funds of the Company exceed 175 million dollars and reserves of over 80 million dollars were available for credit to future operations, expenses, credit losses and earnings.

We appreciate the sustained use of our facilities made by manufacturers, wholesalers, retailers and consumers and the continued support of our stockholders, the institutions and others who have provided our operating funds. We are grateful for the intelligent cooperation and enthusiasm of the officers and employees in the handling of their Company's operations. The outlook for 1955 for the Company and its subsidiaries appears very promising.

E. C. Wareheim, *Chairman of the Board*

A. E. Duncan, *Founder Chairman*

E. L. Grimes, *President*

COMMERCIAL CREDIT PLAN

COMMERCIAL CREDIT COMPANY
BALTIMORE 2, MARYLAND
Offering services through
subsidiaries in more than 400
offices in the United States and
the Dominion of Canada

Condensed consolidated balance sheets as of December 31, 1954 and 1953

ASSETS

	1954	1953
CASH AND MARKETABLE SECURITIES	$ 132 855 034	$ 143 194 074
RECEIVABLES:		
Motor and other retail	547 831 264	641 240 127
Motor and other wholesale	110 243 500	135 148 774
Direct loan receivables	44 493 577	40 302 307
Commercial and other receivables	132 053 574	126 048 068
	834 621 915	942 739 276
Less: unearned income	40 720 083	44 863 451
reserve for losses	12 448 330	14 246 328
Total receivables, net	781 453 502	883 629 497
OTHER CURRENT ASSETS	22 231 596	22 924 942
FIXED AND OTHER ASSETS	15 174 820	13 063 893
DEFERRED CHARGES	4 088 157	5 884 287
	$ 955 803 109	$1 068 696 693

LIABILITIES

	1954	1953
NOTES PAYABLE, SHORT TERM	$ 363 162 500	$ 483 290 000
ACCOUNTS PAYABLE AND ACCRUALS	41 226 001	37 053 609
U.S. AND CANADIAN INCOME TAXES	25 156 943	31 581 121
RESERVES	62 771 971	76 048 758
LONG-TERM NOTES	184 737 500	192 625 000
SUBORDINATED LONG-TERM NOTES	102 500 000	100 000 000
NET WORTH:		
Common stock	49 852 961	45 770 510
Capital surplus	27 910 552	15 591 922
Earned surplus	98 484 681	86 735 773
Total net worth	176 248 194	148 098 205
	$ 955 803 109	$1 068 696 693

A few facts as of December 31, 1954 and 1953

	1954	1953
Gross finance receivables acquired	$2 467 968 945	$3 111 621 259
Gross insurance premiums, prior to reinsurance	33 289 952	49 718 572
Net sales manufacturing companies	113 584 595	110 709 890
Gross income—finance companies	$ 75 395 990	$ 82 837 816
Earned insurance premiums, etc.	43 159 339	47 003 129
Gross profit—manufacturing companies	13 957 241	16 651 081
Investment and sundry income	3 095 755	2 187 836
Gross income	135 608 325	148 679 862
Total expenses and reserves, etc.	67 330 721	71 389 320
Interest and discount charges	20 602 557	25 136 968
Provision for past service benefits under amended retirement plan	2 283 326	

	1954	1953
Net income before U.S. and Canadian taxes	45 391 721	52 153 574
Less U.S. and Canadian taxes on income	21 162 948	28 305 583
Net income of		
Finance companies	13 949 782	14 492 050
Insurance companies	7 215 929	5 454 085
Manufacturing companies	3 063 062	3 901 856
Total credited to earned surplus	$24 228 773	$23 847 991
Common stock per share*		
Net income	$4.86	$5.21
U.S. and Canadian tax on income	4.24	6.18
Dividends	2.60	2.40
Book value	35.35	32.35
Interest and discount charges—times earned	*3.31*	*3.07*

*The number of shares outstanding at December 31, 1954 increased 408,245 compared to December 31, 1953.

Copies of our 43rd Annual Report available upon request

Is It Another 1929 in the Market?

RICHARD W. LAMBOURNE

Market Reaches 1929 *Peak*
Stocks Break Through to All-Time High
Razzle-Dazzle in Stocks
A Mad Hatter's Market

HEADLINES such as these in the financial press may be responsible for the current study of stock-market prices by the Senate Banking and Currency Committee. The chill dread of "1929 all over again" has already sent some apprehensive investors with long memories running into the proverbial stormcellar. Now the matter has reached official proportions.

The Committee's questionnaire mailed to "selected experts and participants in the stock market" asks among other things:

> *Do you think there are significant similarities between the market situation now and that which prevailed in* 1928–29?

Senator Fulbright, the committee's able chairman, is reportedly quoted as saying that "The situation looks very dangerous . . . it is too reminiscent of 1929 . . . we must avoid anything like the 1929 crash."

Unfortunately, historic dates and episodes in the stock market have a way of turning into symbols, with the power of great emotional reaction on large segments of the investing public. So it is with "1929 again," a symbol of all that was wrong in American finance. It is only proper, therefore, that security analysts come forward to correct any undue impressions.

The analogy with 1929 will no doubt be exploded in the Senate Committee hearings; if so, a useful purpose will have been served, and maybe none too soon. For a good many people, the fear of another market debacle has begun to assume some aspects of a psychological fixation, and their investment actions tend to be governed accordingly.

Along this line we may recall other instances of investor obsession. During the war years it was popular to believe that "An immediate postwar depression is inevitable." Later on, there arose the conviction that "Government bonds cannot break par." Mental blocks of this kind are a persistent threat to otherwise well-conceived investment programs.

GREATEST DELUSION OF ALL

We may take note also of the greatest delusion of them all—"Permanent prosperity in the new era." It is significant that this slogan of the late '20's, so much responsible for the 1929 decline, is held up for derision by many who think that they see a similarity between the stock market then and now.

The boundless optimism of those times contrasts sharply with the extent of investment caution that has permeated large groups of investors in recent years right down to the present. The so-called "logic" of the respective situations suggests that, while there may be other elements of weakness, the position of the market is now psychologically much stronger. Should we subsequently engage in universal bullishness, the time would then be ripe for deep concern.

It is worth exploring briefly how the recent degree of preoccupation with "1929 again" has come about. The daily press must be held partially to account.

FASCINATION FOR HEADLINE WRITERS

The "averages" seem to hold a particular fascination for headline writers. First the popular Dow Jones industrial index approached and then "broke through" its 1929 *peak* on November 23, 1954, with a tremendous crescendo of front-page publicity. Another burst accompanied a similar achievement by the Associated Press 60-stock average on February 9, 1955. Some people remember the admonition of Bernard Baruch that, when stock advances make the front page, it is time to get out. One may rightly ask if this advice from a very wise man applies today.

Lest we believe, however, that analogies with 1929 are entirely new, one may note their stirrings in various pronouncements as far back as the fall of 1952 when prices rose sharply after the Republican sweep. The more erudite pessimists at that time could point to the fact that Standard & Poor's composite industrials had surpassed their 1929 high. Confusion must surely reign in the minds of those who saw a parallel premonition in the action of this "scientifically" weighted stock index, which now stands far above the mythical peak.

Thoughtful students of investment analysis and readers of the JOURNAL will have long since minimized the importance of these passing points in stock indexes. In perhaps no other field is there less to be gained from measuring values or making forecasts on the basis of *averages*. How many boardroom followers of market "systems" know that the Dow Jones industrials would now be over 50 points higher if International Business Machines had not been replaced in the index by American Telephone in 1937?

The thinking of trained analysts today is guided primarily by a search for values in individual issues—not by the implications of average movements in stock prices.

The use of *aggregates* in security analysis is apt to be just as misleading from a practical standpoint. It may be interesting but hardly vital to note that the total market value of all common stocks on the New York Stock Exchange is only some 12% above the 1946 highs, whereas the Dow index is almost double. Aggregate market figures for 1929 and 1955 are meaningless, owing to the substantial increase in the number of listed shares.

As should be expected, the combination of headlines and the Senate inquiry has produced a rash of published

Table 1

	Current Feb 1955	1929 High
Price as Multiple of Latest Annual Earnings		
Dow Jones industrials	14.8x	19.1x
Standard & Poor's industrials	13.0	20.0
Barron's 50-stock composite	14.8	20.8
Price as multiple of latest 5-yr avg. earnings, Barron's 50-stock composite	13.4x	24.8x
Dividend Yields		
Dow Jones industrials	4.4%	3.3%
Standard & Poor's industrials	4.3	2.9
Barron's 50-stock composite	4.4	2.8
High-Grade Corporate Bond Yields		
Short term, 5 year	2.75%	6.00+%
Long term, 30 year	3.25	5.00
Federal Reserve discount rate	1.5%	6.00%
Margin requirements: 1955 FRB, 1929 private	60	5-25%
Total stock-market credit, billions	$ 5[a]	$16[b]
As % of total value of listed stocks, NYSE	3%[a]	19%[b]
Annual rate of trading	12%[c]	132%[d]
Turnover, NYSE	28%[e]	119%[f]
Dow Jones Industrials		
Estimated earnings	$30.00[g]	$20.00[f]
Estimated dividends	18.00	12.75
Dividend payout	60%	64%

a December 1954. b September 1929. c 1954.
d 1928. e January-February 1955. f 1929.
g 1955.

comparisons of stock-market conditions in early 1955 versus 1929. These studies inevitably conclude that the two situations are not analogous except in minor degree. The most obvious common denominator seems to be that 1929 came eleven years after the end of World War I and 1955 arrives about one year earlier in point of time—an interesting statistic worth exactly nothing.

With so much already replete in print on the subject, it may suffice to list the salient points of differentiation (Table 1). By necessity, we include a number of criteria based on averages, any one of which would be of little significance standing alone.

It is hoped that this summary will dispel any notions that we are on a 1929 "brink." Some further remarks may be helpful. The disparity in credit employed in the stock market is perhaps the most singular aspect—19% in 1929 as against 3% at present.*

WAS HIGHLY VULNERABLE

The whole fabric of prices in 1929 was highly vulnerable to the pull of this single string. The unraveling process quickly developed in foreign loans, pyramided capitalizations, the gold standard, and all other financial structures related to bank credit. The liquidity of our banking system today is in sharp contrast.

Table 2

	1954	1929
Gross national product, billions[a]	$ 356	$104
Corporate Totals, billions[a]		
Pretax earnings	35.0	9.6
Income & other taxes	17.0	1.3
Net earnings	$ 18.0	$ 8.3
Dividends paid	9.8	5.8
Retained earnings	$ 8.2	$ 2.5
Depreciation allowances	14.5	4.5
Corporate Ratios[a]		
Pretax earnings as % of GNP	9.8%	9.2%
Net earnings as % of GNP	5.1	8.0
Depreciation as % of net earnings	80.5	54.0
Retained earnings as % of net	45.5	30.0
All Manufacturing Corporations[a]		
Liquid assets as % of sales	10.3	8.4
Debt interest charges as % of available pretax earnings	4.8	12.9
Personal disposable income, billions	$ 255	$ 83
Population, millions	163	122
Personal disposable income per capita	$1,565	$680
Adjusted to 1929 consumer prices	1,000	680
Liquid assets held by individuals, year end, excluding corporate securities, billions	328[b]	79[c]
Total individual debt to corporations & financial intermediaries, billions	80[b]	16[c]
Liquid assets of individuals less debt as % of personal disposable income	99%[b]	76%[c]
FRB index of industrial production	125	59
Productivity, index of output per man-hour, adjusted for price	193	100
Annual research expenditures, public & private	$ 3.8[d]	$150[e]
Total money supply, billions	205	56
As % of GNP	57%	54%

a Estimates. b 1953. c 1928. d Billions.
e Millions.

It may be remembered, however, that stock-market credit in 1937 was not large, and yet prices collapsed for other reasons, as they did also in 1946 for a spell.

GROWTH OF AMERICAN ECONOMY

Let us examine, then, a few economic and financial statistics that seem to have some validity in comparing two periods over twenty-five years apart (Table 2). The vast growth of the American economy will be readily apparent—and reflected in the impressive strength of corporate finances.

But some will properly say that there is no assurance in these figures, that a severe decline in earnings and dividends could not occur. Should we have another business downturn, however, it is important to note that the financial position of corporations is quite different from what it was in 1929:

1. Corporate depreciation allowances are substantially higher as a percentage of net income. Cash throw-off "earnings" are much larger, which gives more flexibility to corporate managements in planning capital expenditures and dividend payout policy.

2. The corporate income-tax rate is some four times greater—a factor which with other tax laws affords a cushion against declines in pretax earnings. The degree of cyclical swing in per-share results is more subdued.

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*For these estimates, I am indebted to William F. Butler, consulting economist for the Chase National Bank. They are based on all forms of credit extension to the stock market, including brokers' loans.

3. Retained earnings are larger in relation to dividends for the "average" corporation. Current dividend rates are therefore better protected.

4. Highly leveraged holding companies are practically nonexistent.

Instead of laboring the comparison of 1929 and 1955—or lack of it—let us turn to a more positive analysis of the present situation. Here we may cite a most significant query raised by the Senate Committee in its questionnaire:

What were the principal factors causing the stock-market rise beginning in the fall of 1953 . . . and why was the rate of rise stepped up in the last quarter of 1954?

In early 1953, I theorized that, from a broad standpoint, "American shares have been underpriced throughout the past half decade." Three plausible reasons were offered:

1. The instinctive fear among investors of the semi-socialistic practices of the Democratic Administration.
2. The fear of another cyclical depression such as 1929–32 and 1937–38.
3. The fear of all-out war.

What we have experienced is simply past-due correction of a major area of undervaluation in common stocks. The level of investment confidence in the policies of the Federal Government has been raised.

This appears to be confirmed by market "action" after the 1954 election which created a Democratic-controlled Congress by a small margin. The "recession" of 1953–54 was barely discernible in many sectors of the economy, and not prolonged in others where a sharper adjustment took place.

Korea and Indo-China have not deteriorated into World War III. Additionally the stock market has had the benefit of other strong influences on share prices:

1. The steadily upward trend in dividend payments—excepting certain well-known casualties—which is continuing in 1955.
2. A rise in share earnings for many companies, in reflection of removal of the excess-profits tax and other factors including well-sustained gross business volume.
3. Increased investment in common shares by institutional investors of diverse types, many of whom were heretofore committed largely to fixed-income securities, which as a class have suffered a loss of investment attraction, in light of the long-term inflationary bias of the economy.
4. A substantial increase in the money supply, due to the "flexible policy" of the Federal Reserve Board in 1953–54.
5. Continued economic recovery abroad, as shown in the advance of share prices on major exchanges throughout the world.

The Senate questionnaire fails to ask perhaps the most vital question bearing on the stock-price situation today. We might phrase it as follows:

Do you believe that market prices generally are excessive, in relation to prospective earnings and dividend yields?

The question involves, of course, several points of analysis, each of which could be the subject of lengthy exploration. The matter of price-earnings multiples is especially crucial.

There is little evidence that "ratios" at present are abnormally high. In terms of 1954 results, such leading blue-chip issues as General Motors, U. S. Steel, Standard Oil of New Jersey, and Union Pacific are priced in close vicinity to the traditional "ten times earnings." As shown in Table 1, the stock composites, though not on the postwar bargain counter, reflect market pricing fairly close to what most analysts would regard as a fair "normal" for a group of quality issues.

In the specific example of the Dow Jones industrials, recent reported earnings are some $27 per "average" share annually. Assume, if you will, that these earnings from a diversified list of 30 "high-grade" stocks might reasonably be worth a multiplier of only one-half the rate at which the new long-term Treasury 3% bonds are capitalized (at par equals 33 1/3 times). The resulting calculation works out to 450 for the industrial average.

If we assume a conservative dividend payout of about two thirds, or $18, the current yield at 450 would then be 4%—not a "high" return by any means, but perhaps quite reasonable if further increases are potentially in store.

No one intimate with the stock market would presume to suggest that this or any other method will prove conclusively that share prices are very close to where they "ought to be" or that they will stay there. The burden of proof, however, would seem to be with those who profess to see a gross overevaluation of our leading shares in the present market.

Perhaps much of the concern about "these high market levels" is a distrust of prevailing high price-earnings multiples (15 to 25 times or more) for most "growth" stocks and their correspondingly sparse yields. Skilled analysts will immediately rejoin: "It was ever thus."

Only at rare intervals can investors buy superior equity growth at a measurable current yield spread over bonds. Further, the advantages of earnings plowback and long-term capital appreciation have become increasingly more valuable to a wider span of investors in these times of high income-tax rates.

It is noteworthy that pension funds and life insurance companies, where income tax rates are very low, have also seen the basic attraction in equities with pronounced growth trends. A premium for superior management and long-range research is willingly paid.

MERITS OF GROWTH STOCKS

This is not the proper place for a dissertation on the merits of "growth" stocks and how they should be evaluated. No doubt, in some instances, these issues are overpriced, in relation to their foreseeable prospects. But we should not forget that the American economy is a dynamic one—a favorable background indeed for companies having potentialities ahead of the average to start with.

The dynamic forces in the United States are of vital import as we attempt to decide, as we must, whether corporate earnings now are abnormally high; that is, above a reasonably expectable average for the next several years.

If they are not, if further long-term growth lies ahead, then our answer to the question of present-day stock market prices can be resolved.

Is there really a serious threat, ex-war, to corporate earnings on a longer-run basis? If speculative excesses can be held in check, the outlook must be regarded as distinctly favorable. Even a partial list of the driving forces in the economy and their ramifications should support an optimistic view:

1. New industrial technologies: Automation, electronics, productivity.
2. New materials and products: Atomic power, new metals, expansion of markets.
3. Laborsaving equipment: Computers, materials handling, plant modernization.
4. Population growth: Consumer goods, utilities, schools.
5. Shift to the suburbs: Residential and commercial building, automobiles.
6. Health and welfare of the mass population: Drugs, insurance, pension funds.
7. Use of leisure time: Television, home repair, tourists.
8. New methods of distribution: Shopping centers, packaging, decentralization.
9. New methods of transportation: Air lines, highways, piggyback.
10. Financing mechanisms: Bank credit, consumer finance, FHA.
11. Defense of the United States: Aircraft, nuclear energy, electronics.
12. The potential of world trade: Exports, capital investment abroad.

We could expand the foregoing into treatise length. Already the long-term growth estimates carefully compiled by the Paley Commission are beginning to appear too low. The projections of the Department of Commerce in "Markets after the Defense Expansion" are likewise falling short in many respects.

No one should have the impression that we will achieve these goals in a straight-line trend without periodic interruption. However, it seems very difficult to forecast a cyclical collapse of sharp proportions or prolonged duration as long as these forces continue to exert such powerful pressures in the direction of economic expansion.

Sumner Slichter, the eminent Harvard economist, has been quoted as believing that "The old-fashioned business cycle is being broken up into a number of more or less independent cycles. There has been a gradual loosening up of the entire economy so that the different parts of the economy (construction, consumption, the purchasing of plant and equipment) move more or less independently of each other."

The reasons for this change are again a complete subject of their own, but one may point to the recession of 1953–54 for support. Steel production declined to 60% of capacity, but the output of cement and real disposable income reached new highs. Surely the economic structure today is a far cry from 1929–32, when everything collapsed together.

What are the principal risks that the intelligent investor must consider? *First* is the possibility of another short-run recession. With "recovery" trends in general business at this time, however, we may be safe in disbelieving that a fresh decline is just around the corner. It seems doubtful that the business cycle has been reduced to "six months up and six months down."

Second, a more stringent credit squeeze by the Federal authorities is not to be ignored. The economy at present levels just does not have a surfeit of working credit. To control inflationary pressures, therefore, the Government may feel compelled to take restrictive action in the direction of higher interest rates. New mortgage financing under liberal terms is now on a scale that may also give some pause. On balance, the new "flexible" policy of the Federal Reserve, which works both ways, is a wholesome mechanism, but we might not have the degree of money expansion that prevailed in 1954.

Third, the market itself may have bred a number of internal weak spots. Most analysts deplore the frothiness and other evidences of "speculation" that have appeared in various sections (aircraft stocks, in particular). They are concerned, too, about the recent rapid advance in low-priced shares, the swing in odd-lot trading to the buying side, and the prominence of market "tipsters."

Fourth, there is a prospective large increase in the supply of new security issues, including common stocks, against a background of tightening availability of funds.

Fifth, the extension of consumer credit shows signs of increasing cyclical instability. It seems to run in fits and starts—a factor in short-run business swings.

Finally, what about Russia? The exchanges of the world seem to be expressing real peace, but can we be sure? The risk of broadening war and attendant taxes must still be viewed as the predominant threat to corporate earnings and therefore to the level of common-stock prices. We will probably have to guard against it for many years to come.

BUYING OPPORTUNITY

It would be foolish indeed to preclude the possibility of a sizable market "correction" any time under these conditions. If, however, our presumption is correct — that present rates of corporate earning power are not abnormal —then a decline in prices for any of these reasons should be looked on as a buying opportunity. An exception would be if it came on an outbreak of war, in which event the entire basis of our evaluations would have to be reappraised anew.

One may hazard a guess that the hidden strength of the situation will be manifest in a period of ordinary price adjustment. It seems probable that many "sold-out" investors, including some very large and presently cautious institutions, would rapidly proceed to increase common stock positions if given a real price advantage by the market at large.

* * *

Responsible analysts will no doubt continue to appraise the financial outlook and the prospects for individual stocks with the same circumspection that has characterized the stock market most of the time in recent years. "Agonizing selectivity" will probably continue as the order of the day.

HEDGE AGAINST UNFORESEEN RISKS

Professional managers of investment portfolios are unlikely to deviate from their policy of maintaining reasonable dollar reserves as a hedge against unforeseen risks. The present situation does not really call for any drastic change for investors who have had the courage and foresight to stay with well-balanced holdings that include a reasonable equity participation in our many growing industries.

We may all take heart that the rise in market prices so far is not comparable to the excesses of 1929, and, therefore, that the risk to capital invested in sound equities is no where near as great. The impressive longer-term growth potential of the United States—which in time must be translated into the earnings of corporate shares — seems clearly predominant as a guiding policy for investment today.

SOUTHERN CALIFORNIA Edison

Southern California Edison Company

DIVIDENDS

The Board of Directors has authorized the payment of the following quarterly dividends:

Payable March 31, 1955 to stockholders of record March 5:

ORIGINAL PREFERRED STOCK
Dividend No. 183
50 cents per share.

CUMULATIVE PREFERRED STOCK, 4.32% SERIES
Dividend No. 32
27 cents per share.

Payable April 30, 1955 to stockholders of record April 5:

COMMON STOCK
Dividend No. 181
60 cents per share.

PREFERENCE STOCK, 4.48% CONVERTIBLE SERIES
Dividend No. 32
28 cents per share.

PREFERENCE STOCK, 4.56% CONVERTIBLE SERIES
Dividend No. 28
28½ cents per share.

Payable May 31, 1955 to stockholders of record May 5:

CUMULATIVE PREFERRED STOCK, 4.08% SERIES
Dividend No. 21
25½ cents per share.

CUMULATIVE PREFERRED STOCK, 4.88% SERIES
Dividend No. 30
30½ cents per share.

Payable June 30, 1955 to stockholders of record June 5:

ORIGINAL PREFERRED STOCK
Dividend No. 184
60 cents per share.

CUMULATIVE PREFERRED STOCK, 4.32% SERIES
Dividend No. 33
27 cents per share.

Checks for the above dividends will be mailed from the Company's office in Los Angeles on the respective payable dates indicated.

P. C. HALE, *Treasurer*

February 18, 1955

ARMCO EARNS MORE THAN $41,000,000 in 1954

Net Profits up 21% over Previous Year

Here are financial highlights of Armco Steel Corporation's Annual Report:

	1954	1953
Net Sales	$532,045,314	$588,919,900
Net Tons of Ingots Produced	4,448,772	4,704,773
Per Cent of Rated Ingot Capacity Operated	90.8%	97.8%
Net Tons of Manufactured Products Shipped	3,171,401	3,375,630
Net Earnings	$41,100,266	$33,902,462
Per Cent Net Earnings of Net Sales	7.72%	5.76%
Per Share of Common Stock	$7.86	$6.50
Cash Dividends on Common Stock	$15,645,892	$15,640,891
Per Share of Common Stock	3.00	3.00
Earnings Retained in the Business	25,454,374	18,261,571
Capital Expenditures	30,260,263	29,316,794
Total Taxes	50,183,672	57,773,971
Per Share of Common Stock	9.60	11.08
Long-Term Debt—less current portion (end of year)	64,094,018	75,281,460
Working Capital	143,288,613	134,103,527
Book Value Per Share of Common Stock	64.95	60.16

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ARMCO®

ARMCO STEEL CORPORATION
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SPECIAL STEELS

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FERRO

CORPORATION

*CONDENSED CONSOLIDATED BALANCE SHEET AS OF DECEMBER 31, 1954

ASSETS	
Cash & Government Securities	$4,497,527
Notes & Accounts Receivable	5,245,398
Inventories	8,658,959
Prepaid Expense	488,209
Current Assets	$18,890,093
Other Assets, Including Investments, Property, Etc.	11,919,089
	$30,809,182

LIABILITIES	
Current Liabilities	$7,352,724
Long-Term Liabilities Due After 1955	5,180,264
Other Liabilities & Reserves	267,990
Shareholders' Equity	18,008,204
	$30,809,182

***Annual Report, Just Released, Is Available On Request**

FERRO CORPORATION

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New Era Stock Markets

JAMES F. HUGHES

THERE HAVE BEEN four outstanding bull markets worthy of a new era rating since the Civil War. The first one occurred between 1877 and 1881. The second ran from 1896 to 1906, and the third from 1921 to 1929. The fourth started from lows reached in the spring of 1942 with the terminal date shrouded in the uncertainty of the future.

It is interesting to note that all of these new era bull markets followed either great wars or great depressions or a combination of both. Each lasted long enough to attract exceptional public speculative participation. The first three were followed by Congressional investigations and legislation designed to correct what appeared to be major factors in the preceding "boom and bust" sequence.

NO NEW ERA MARKET 1865–72

After the Civil War, the first sustained advance in the stock market that earned a new era rating did not occur until 1877 to 1881. There was no exceptional public speculation in the bull market accompanying the postwar business boom that preceded the panic of 1873.

1867 to 1869 brought forth a modest bull market which was followed by a declining trend that continued to the panic lows of 1873. The disappointing performance of the stock market during the four years from 1869 to 1873, despite extremely favorable business trends, provided a good example of the inability of the national banking system to finance the combination of a protracted advance in the stock market and a long period of business prosperity.

Henry Hall in his book on *Security Investments* explained the situation in the stock market from 1869 to 1873 as "one of distribution." He noted that "general prosperity was unchecked until 1873, but stock speculation drooped."

New records were established in railroad building, iron and steel production, and agricultural output. By 1873 exports were breaking all previous records with an increase that was more than three times the amount during the final year of the Civil War. But, in Mr. Hall's words, "Every burst of business activity, however, and the requirements of the railroad companies, called for every dollar the banks could loan, and the burden was borne with difficulty."

Another excellent reason why there was no sustained new era type of bull market in the years following the Civil War was that the market staged what Mr. Hall describes as a "speculative revel" that "went madly on" during the war. From April 1861 to the spring of 1864, the average price of twenty rail stocks more than tripled.

According to Mr. Hall, "In looking over the record of 1864, one finds a number of stocks which sold at prices not again equaled for a whole business generation. As for the market as a whole, taking the average of the trading stocks, it required forty years to reach once more the high level of 1864 . . . Swept away by the wild enthusiasm of the times, speculators and businessmen believed the boom would last forever."

From a psychological and speculative viewpoint, there can be little doubt that the stock market advance from 1861 to 1864 deserves a new era rating. However, from an economic viewpoint, the existence of a serious threat of paper money inflation, against a background of wartime demand, makes the Civil War bull market less significant as a social phenomenon than the peacetime new era bull markets that were created by increased speculative interest under more normal conditions.

The wartime speculative orgy, however, does help to explain why there was no new era stock-market boom during the great business prosperity following the Civil War. For technical and psychological reasons it appears to be extremely difficult for genuine new era booms in the stock market to develop more frequently than once in every twenty to twenty-five years. As suggested by Mr. Hall's technical evidence, it really requires a new business generation to sustain an old-fashioned speculative boom until it generates a widely accepted new era psychology.

SPECULATIVE REVIVAL 1879–81

The new era bull market of 1877 to 1881 started from a completely deflated low point in stock prices and business activity. Recovery was slow in the first two years, but, before the end of 1879, there was ample evidence of reviving confidence.

In this year, as described by Mr. Hall "men of means awoke suddenly to the fact that railroads were of value as investments after all, and a marvelous buying of securities sprang up, which electrified the financial world and led to a boom in prices. . . . As soon as the boom started there was no hesitation on the part of investors and traders. Orders to buy poured into every brokerage office in a flood; and brokers were in danger of being utterly swamped with business. In 1880, especially, the stock exchanges were the scene of furious trading, such as brokers had never witnessed."

Mr. Hall's description of the financial scene from 1879 to 1881 is reminiscent of recent years. As was true of railroad stocks in 1879, during recent years there has been a rediscovery of the fact that common stocks in general have value as investments. Other comments by Mr. Hall on the 1879–81 situation that suggest current conditions include the following: "A number of striking railroad consolidations were arranged. . . . The buying of stocks for control, stock dividends, rights on new issues, and strong manipulation by operators promoted speculation and kept it at the boiling point."

With the omission of "railroad" in connection with consolidations and the possible exception of "strong manipulation by operators," basic financial activities and interests in the new era of the early '80's were not very much different from those that have been arousing investment and speculative interest in the 1950's. The stock-market boom ended in June 1881 for reasons, as described by Mr. Hall, that are not in evidence at this point in the current new era boom. The direct cause of the 1881 reversal in the stock market was, in Mr. Hall's opinion, the pressure of enormous issues of new stocks and bonds by the railroads, followed by a partial failure of the wheat and corn crops, and a recurrence of railroad rate wars.

MARKET DECLINED WHILE BUSINESS CONTINUED GOOD

From June 1881 until the latter part of 1883, general business activity continued to hold up very well, thus duplicating the experience of the 1869–72 period. The basic difficulty encountered by the market from the middle of 1881 to 1883 was the inability of the national banking system to supply the demands for increased credit necessary to keep a bull market going as long as general business continued prosperous.

In the bear market that started from the June 1881 high and continued to a low point in May 1884, about 70% of the total decline, as shown by the Axe-Houghton average, took place during the 28 months that business continued to hold above normal. This meant that only 30% of the total bear market decline took place after business dropped below normal in November 1883. Thus the downtrend in the stock market continued for only six months after business declined to depression levels.

Unfortunately the final months of the bear market coincided with several important brokerage and bank failures, including the firm headed by ex-President U. S. Grant. This helped to dramatize the Nation's economic difficulties and the decline in the prices of leading rail securities. Renewal of serious rate wars before the end of 1884 contributed to political demands that the railroads be placed under Federal Government regulation.

The Interstate Commerce Act was ultimately passed by Congress in February 1887. The beginning of Government control of the railroads was thus linked to the collapse of the most important bull market between 1864 and the end of the century.

ROUTINE MARKET BETWEEN NEW ERAS

Technically, the period between May 1884 and February 1893 can be classified as a bull market. However, it followed the 1867–69 pattern and never was able to attract an important public speculative interest.

Nearly 60% of the total advance was completed by the time business was able to get back to normal levels around the middle of 1886. Important intermediate declines prevented the market from staging any sustained advance between 1886 and the beginning of 1893.

Industrial activity averaged above normal for each of the seven years from 1886 through 1892, but recurring periods of moderate financial stringency prevented the market from staging any sustained exploitation of the favorable business situation. Finally a more serious crisis in 1893 produced a financial panic that ushered in the double depression of 1893–96.

Accompanying this double depression were two periods of declining stock prices, one lasting from February to July in 1893 and the other from June 1895 to August 1896. A 40-point average decline in 1893 was completed by the time industrial activity dropped below normal in July. A 24-point recovery from July 1893 to June 1895 was also completed before business recovery exceeded normal in August 1895.

This recovery in business was followed immediately by the beginning of the second phase of the double depression. However, before business activity again dropped below normal in January 1896, the stock market had completed 80% of its total average decline.

This meant that, during a period of four years of seriously depressed general business conditions, the stock market was in a declining major trend for a total of only seven months while industrial activity was below statistical normal. The amount of decline in the average during these seven months was only 11%.

This depression performance of the market was made possible by its inability in the years prior to 1893 to exploit to the limit the long period of good business. However, the ten years from 1887 to 1896, when there were only brief flashes of speculative activity in the stock market, prepared the way for the next new era type of bull market.

NEW ERA BULL MARKET 1896–1902

As in 1877, the market in 1896 started to advance from a deeply depressed industrial and financial low point. Recovery in stock prices proceeded slowly, with industrial activity not reaching normal levels until November 1897.

There were minor dips in business activity in 1898 and the second half of 1900. Prompt recoveries from these brief recessions proved exceedingly stimulating to the stock market, which, during 1901 and 1902, staged a performance that justified comparison with 1863–64 and 1880–81.

New high records were established by the Nation's exports. The building industry flourished. Production of iron and steel was tremendously stimulated by their increasing use in new structures.

As described by Henry Hall, "Every businessman was doing well. Labor enjoyed ample employment at good wages; new ventures of all kinds were launched by the score. . . . Personal expenditures were lavish in the extreme, and men dressed their families with a magnificence never before witnessed in this republican country."

All this was reflected in the great bull market then in progress. According to Mr. Hall: "Brokers reaped a golden harvest of commissions in the execution of orders to buy from every State in the Union. Never before had been witnessed such interest on the part of the general public.

"Transactions were in enormous volume. Million to 2,000,000 share days were common, and, on one day in 1901, sales at the New York Stock Exchange reached 3,000,000 shares.

"Clerks were forced to work nights and holidays to make out Clearing House sheets and post the books, in order not to be swamped with the stream of business. So tremendous was the physical labor of handling such a mass of speculative business, that, on May 11, 1901, the New York Stock Exchange was closed for one day to enable brokers to dispose of the arrears of work."

The top of the bull market came in September 1902. As interpreted by Mr. Hall: "Reckless speculation had forced stocks to a dangerous pinnacle of prices, supplying nearly a parallel to the year of 1864. . . . Stocks were from $25 to about $170 higher than in 1896, and the main body of shares was near to the highest level they had ever attained in the history of the country."

As quoted above, Mr. Hall was writing with the help of hindsight. In the autumn of 1902, however, competent observers were still under the magic spell of six years of sustained financial and industrial prosperity.

Frank A. Vanderlip, then a vice-president of the National City Bank, speaking at a banquet of the Chamber of Commerce of Wilmington, N. C., on October 31, 1902, reflected the existing optimism in the following comments: "We are all aware that we are in a unique period of commercial, financial, and industrial development. It is undoubtedly the most important, the most remarkable, and the most interesting period of industrial and financial evolution in the history of the Nation. We have witnessed, in the last half dozen years, a commercial expansion and a financial movement, alike unparalleled in the achievement of our own country or in the growth of other lands.

"These half dozen years have been productive of statistical totals bewildering in their magnitude—of industrial expansion unparalleled either in volume or in significance, of widening financial influence, of broadening credit operations, of banking development—all marking growth so great that it is becoming difficult for us to view with a correct and rational perspective the phenomena marked by these new totals."

Earlier in the month of October, State Senator J. Sloat Fassett, speaking at the Convention of the New York State Bankers Association, paid a tribute to the glamorous economic situation on view in the early years of the new century. He said: "The world at large is living today a strenuous life. We are living in a very interesting period of the world's history. . . . The world moves faster every year. It is moving now with a rush. . . . The growth has been something phenomenal. . . . What has made this mighty movement possible? . . . It is not accident. It is not magic. It is natural. It is evolution. . . . It has come from improved machines, improved methods, and improved men.

"Great things indeed are behind us, but vastly greater ones are before us. . . . Now we find ourselves actually facing the new period, the new epoch. Of this new era, of this new trade and commerce, bound to be increasingly greater for years to come, we hope to make this peerless city of New York the great clearing house."

THE PANICS OF 1903 AND 1907

The speeches just quoted were actually delivered during the first month of the bear market that accompanied what came to be known as the Rich Man's Panic of 1903. This was ushered in by a period of credit stringency in the autumn of 1902 that had a more depressing effect on the stock market than on general business activity, which in October 1903 dipped below the statistical normal in a moderate recession. However, in this same month of October 1903, the stock market reached its low point and started the slow recovery that developed into the bull market of 1904–06.

While industrial activity advanced to record highs in 1906 and 1907, the stock market ran into the same kind of technical and credit difficulties that had restrained it from 1869 to 1872, from 1887 to 1892, and in the autumn of 1902. The credit stringency of 1906–07 developed into an old-fashioned money panic by October of the latter year.

This panic resulted in a crash in industrial activity from prosperity levels in October to well below statistical normal in November, and to major depression levels in December. The stock market, however, after having been in a discouraging downtrend for more than a year reached its low point in October and showed some technical recovery after business activity dropped below normal.

FEDERAL RESERVE SYSTEM AND THE NEW ERA OF THE 1920'S

It was this unfortunate ending of the 1896–1906 new era that resulted in the Congessional investigation by the Glass-Pujo committee of the national banking system and the money trust. Out of this investigation ultimately came the legislation creating the Federal Reserve System. And out of the Federal Reserve System came the new era of the 1920's, followed by the great depression of the 1930's.

The preceding analysis of the relationship between financial trends and business trends during the period from 1860 to 1907 provides background material necessary for an understanding of the part played by the Federal Reserve System during the 1920's. The Federal Reserve System produced the new era boom by financing, from 1924 to 1929, five years of simultaneous bull market and business prosperity.

The new era boom set the stage for three years of synchronized bear market and business depression. The new era of the 1920's deserved its title, because it was something that never had happened before in the United States.

In six out of ten bull markets from 1884 to 1923, substantially more than half of the total advance occurred before business activity reached normal. The largest proportion of total advance after business exceeded normal was 58% in the war-boom market of 1915–16. In the new era bull market, 83% of a record-breaking advance during the six years from 1923 to 1929 took place after business reached prosperity levels.

Even more clearly defined than the tendency of bull markets to occur while business was below normal was the tendency of bear markets to take place while business was still above normal. In seven out of the eleven major bear markets prior to 1924, including the money-panic crashes of 1893 and 1907, the decline in the stock market was completed by the time general business activity fell below normal.

There were only 25 months in fifty years divided among four periods in different decades that the stock market was in a major bear trend with industrial activity below normal. Compared with this record, the bear market that began in 1929 ran for 31 months, synchronized with declining business activity at depression levels.

The point to be emphasized in this connection is that speculative operations in the stock market under the control of a sophisticated professional personnel never really ran wild until the Federal Reserve System proved that it could finance both a bull market and business prosperity for a period of five years. It was the publicity resulting from the long duration of the boom that got the general public all excited and deeply involved. Without the Federal Reserve and the mushroom growth of public participation, professional speculative operations could never have been conducted to provide the sensational revelations of the subsequent Congressional investigation conducted by Mr. Pecora.

When the boom collapsed and the New Deal was catapulted into power, it was professional speculation (not the conditions that made it possible on a grand scale) that was held responsible for all the damage done. So the Securities & Exchange Commission was created to police professional speculative activities, and the Federal Reserve System was granted new powers to help make certain that speculation would never again produce a 1929.

NEW ERA BULL MARKET 1954—?

The new era boom of 1954–55 is the final product of twelve years of slow but persistent advance that picked up amazing momentum in the thirteenth year. It has the historical background for a new era in following a great depression and a great war. Furthermore, it did manage to keep up with the timetable for new era bull markets calling for one new era market every twenty to twenty-five years.

Thus far, its new era rating depends largely on the fact that average stock prices in 1954–55 have soared to levels that dwarf all the highs reached in the preceding twenty-four years. This means that the regulated investment market has attracted an important public speculative following that may prove extremely difficult to control.

A new era psychology on a thin margin in a free speculative market that permitted unrestricted short selling undoubtedly resulted in a much more vulnerable situation than a new era psychology operating on a 50% margin to a cash basis in a regulated investment market that can not be raided by professional short selling.

It is this technical fact that undoubtedly explains the record-breaking phenomenon of a 160-point advance in the Dow Jones industrial average in 17 months, during which the maximum technical correction has been 5%. In the course of the final 160 points advance from 220 to 380 in 1928–29, the average had five intermediate corrections: one of 5%, two amounting to 8%, one of 10%, and one showing a loss of 13%.

It is possible that the regulated market, in protecting public speculators against more frequent sharp technical shakeouts, will encourage an expansion of new era optimism that will persist as long as general business conditions remain favorable. This could very well ultimately duplicate the 1929 situation when the market and business went up together to a record peak of prosperity and then went down together in a perfectly synchronized business and financial debacle.

There is ample justification for assuming that the Federal Reserve monetary managers of 1955 are in just about the same spot that their predecessors found themselves in the first half of 1928. From 1921 to 1928, the Federal Reserve authorities succeeded in maintaining an admirable balance between financial and industrial trends.

The brakes were put on, in the latter part of 1922 and early 1923. This was followed by an 18% intermediate decline in the Dow Jones industrial average during 1923, and a mild business recession that reached its low in the spring of 1924.

The credit brakes were released and not applied again until both business and the market had recovered to new high levels in 1925. When moderate credit pressure was again resorted to late in 1925, the result was a sharp intermediate decline in the market during February–March 1926 and a flattening out of the business recovery, followed by a moderate decline in 1927.

August 1927 saw a return to an easy money policy. A reduction in the rediscount rate to 3½% proved successful in stimulating stock market and business recovery. In curbing the 1923 and 1926 boomlets, and subsequently encouraging a resumption of market and business recoveries, the Federal Reserve appeared to have mastered the art of credit control of economic forces.

A quarter of a century later, the Reserve authorities have again successfully handled two threats of business recession. In the process, they have stimulated speculative enthusiasm to a point where the stock market is threatening to get out of hand. In 1928, after getting two strikes on the business cycle, they lost control, and the new era market ran away with the game.

In 1955, our credit managers again have two strikes on the business cycle. At this juncture it may be wise to take time out and consider the following good advice contained in the Annual Report of the Federal Reserve Board for 1923:

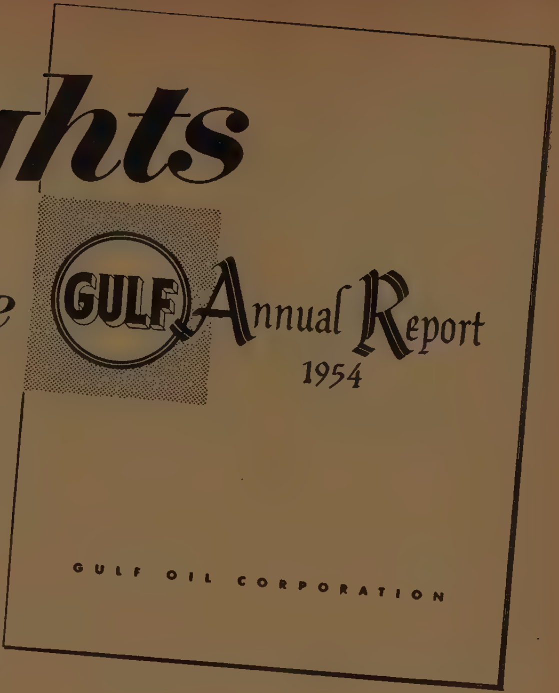
"Credit administration must be cognizant of what is under way or in process in the movement of business before it is registered in the price index. The price index records an accomplished fact.

"Good credit administration in times of active business expansion should not encourage or assist the excessive accumulation of forward commitments in business and banking, which only later on will definitely reflect the rate at which they have been taking place in resulting changes of credit volume and changes of price levels; and in times of business reaction should discourage enforced liquidation of past commitments, which also will only later on reflect the rate at which it has been taking place in altered credit volume and price levels. The problem of efficient credit administration is, therefore, largely a question of timeliness of action."

Federal Reserve timing will, in all probability, decide whether the new era of 1954–55 goes into history as a good new era or a bad new era. However, the new era of this business generation has already made a place for itself in history as the first new era to be honored with a Congressional investigation while still in full blossom.

Highlights

from the



GULF Annual Report
1954

GULF OIL CORPORATION

1954 was another good year for Gulf!

Operations of major departments showed steady increases which were reflected in greater revenues and earnings than in the previous year.

If you would like a copy of Gulf's Annual Report which sets forth the company's accomplishments during 1954, address your request to the Secretary, Gulf Oil Corporation, Pittsburgh 30, Pa.

FINANCIAL DATA

	1954	1953
Net Income—Total Amount	$ 182,813,000	$ 175,036,000
Net Income—Per Share*	$ 7.16	$ 6.86
Cash Dividends Paid—Total Amount	$ 49,087,000	$ 47,189,000
Cash Dividends Paid—Per Share	$ 2.00	$ 2.00
Stock Dividends Paid	4%	4%
Net Working Capital (current assets less current liabilities)	$ 391,636,000	$ 424,644,000
Long-Term Debt	$ 182,506,000	$ 178,510,000
Net Sales and Other Operating Revenues	$1,705,329,000	$1,640,872,000
Capital Expenditures (for properties, plants, and related assets)	$ 292,032,000	$ 221,598,000
Depletion, Depreciation, Amortization, and Retirements (non-cash charges)	$ 143,594,000	$ 138,831,000
Total Assets	$1,969,052,000	$1,765,748,000

*Based on 25,533,768 shares outstanding at end of 1954

OPERATING DATA—DAILY AVERAGE BARRELS

[Includes Gulf's interest in all important operations except Iran and France]

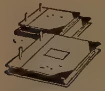
	1954	1953
Net Crude Oil Produced	763,222	737,447
Refinery Runs	536,679	496,696
Products Sold	565,140	557,740

HIGHLIGHTS OF

59th

ANNUAL REPORT

SOUTHERN CALIFORNIA EDISON COMPANY • 1954



REVENUE AND EXPENSES

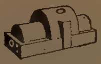
Gross revenue was $155,095,565, an increase of $13,585,810 or 9.6% over 1953. Net income was $26,618,255 and earnings for common were $21,276,118, equivalent to $2.95 per share of common stock after all charges, including preferred and preference dividends, compared with $2.56 in 1953.

FINANCING

During the year an issue of 600,000 shares of common stock was sold for $23,670,000 and $30,000,000 face value 3% First and Refunding Mortgage Bonds, Due 1979 were sold for $30,005,970. Approximately $100,000,000 of additional new money will be required in 1955 and 1956.

PLANT EXPANSION

Electric plant investment increased $65,054,461 to $834,268,908 in 1954 compared with an increase of $63,610,524 in 1953. The first unit at Redondo No. 2 Steam Station with 160,000 kw generating capacity and the 125,000 acre-feet Vermilion Valley Reservoir in the High Sierra was completed in 1954. The El Segundo Steam Station consisting of two 160,000 kw generating units is under construction and the first unit is scheduled for completion in July 1955. The second unit at El Segundo is scheduled for completion in September 1956, and the first 160,000 kw unit of the new Alamitos Steam Station also under construction is scheduled for completion in November 1956.



GENERATION

Total output was 10,934 million kwh, up 6.4% over 1953. System peak demand was 1,998,200 kw an increase of 5.9% over 1953.

RATES

New rate levels effective September 13, 1954 were authorized by the California Public Utilities Commission to provide a 5.9% rate of return on a depreciated book-cost rate base. The newly authorized rates are expected to increase common stock earnings about $.50 a share annually.

CUSTOMER RELATIONS

A new record of 77,054 meters were connected in 1954 compared with the previous record of 74,695 in 1953. An intensive sales campaign was launched on January 19, 1955 to increase the use of electricity in all customer classifications with emphasis on sales to domestic customers.

Harold Quinton

PRESIDENT

CONDENSED CONSOLIDATED BALANCE SHEET

December 31, 1954

ASSETS		LIABILITIES	
ELECTRIC PLANT	$834,268,908	STATED CAPITAL AND SURPLUS	$368,616,809
INVESTMENTS AND OTHER ASSETS	9,162,564	BONDED INDEBTEDNESS	328,000,000
CURRENT ASSETS	59,038,717	CURRENT LIABILITIES	52,309,938
DEFERRED CHARGES	3,206,018	DEPRECIATION RESERVE	144,842,987
CAPITAL STOCK EXPENSE	2,978,340	OTHER RESERVES AND LIABILITIES	14,884,813
TOTAL ASSETS	$908,654,547	TOTAL LIABILITIES	$908,654,547

SOUTHERN CALIFORNIA EDISON COMPANY

EDISON BUILDING • 601 WEST FIFTH STREET • LOS ANGELES 53, CALIFORNIA

Changing Status of the Variety Chains

LAWRENCE R. KAHN

RETAILING IS A DYNAMIC AFFAIR and commands the major portion of the growing consumer dollar; yet shifts in the relative importance of the types of retail outlets are constantly taking place. Because of the nature of the industry and its vast scope, these changes are relatively slow, but, once they get started, they frequently go a long way before being corrected or even halted.

Through the period of the 1930's and into the early 1940's, the variety-chain-store field made most powerful strides; in 1929, such sales represented approximately 1.86% of total retail trade. By 1935, this position had risen to 2.66%, and, in 1942, when merchandise shortages upset usual retail patterns, variety-store sales represented 2.68% of the total retail picture.

As indicated in Table 1, the turning point of the variety-store business, relative to total retail trade, took place in 1942. Since that time, although dollar sales have practically doubled, the trend compared with that of total retail trade has been adverse.

The proportion of total retail volume reached by the variety stores has steadily diminished. Although a low of 1.80% was realized in 1950 and has apparently held steady since then, the inability of the variety chains to improve their position, despite material broadening of lines carried and a substantial increase in the upper-price brackets of goods handled shows that we may not as yet have seen the smallest piece of the total retail pie that the variety stores are able to carve out from year to year.

It is also important to note that, even in the recession years of 1949 and 1954, when variety chains theoretically should have benefited by a "trading down" on the part of consumers, the stores failed to improve their position. In all, it seems that this group is diminishing slowly but perceptibly in its importance to the total, although, as the entire retail field continues to expand, in line with growing population and higher consumer purchasing power, the over-all dollar figures of the variety stores should continue to gain. What is important to note is that the variety chains are not gaining so fast as retail trade as a whole, and, hence, the companies have less-than-average attraction from a sales-growth basis, and an equally less-than-average attraction as investment.

CONTRACTING OF PROFIT MARGINS

Loss of relative sales position of the variety chains might not be of particularly grave consequence, especially if the over-all business were rising, if this loss of position could be compensated for by widening or at least maintained profit margins. Actually, however, despite the gradual but material sales gains over the past number of years, the operating profit margins of many of the major companies in the industry have been contracting.

As seen in Table 2, the operating profit margins that had been enjoyed by these companies for a long period of time, and particularly in the 1942–46 period, began to narrow perceptibly in 1947, and continued to do so since. Not only did the variety chain stores fail to realize their full proportionate gain during the post- World War II retail sales improvement, but also operating profit margin, which in the final analysis is one of the best indicators of operating efficiency, was steadily being narrowed.

SOME INDIVIDUAL COMPANIES

Some individual companies illustrate that from 1942 to 1945 there was a steady widening in the operating profit margin. The best example in this category is S. S. Kresge, whose operating profit margin reached 15.8% in 1945, then contracted to 15.3% in 1946, and thereafter dropped well below the 1942–46 level. By 1953, the operating profit margin was down to 9.4%, or some 40.5% less than in the peak 1945 year. A further reduction probably took place in 1954, although final figures are not as yet available.

S. H. Kress shows a similar if not quite so drastic reduction, while Woolworth went down from a peak of 11.8% realized in both 1945 and 1946 to 8.4% in 1953, or a contraction of some 29%. G. C. Murphy, though also showing a contraction, was one of the few concerns to make a reasonable improvement in its operating margin in 1953 and, on the whole, has been somewhat more stable.

The reasons for the contraction in operating profit margins are numerous. The most important probably is the steadily rising wage rates which the companies have had to absorb. As a corollary of this condition, the steadily decreasing productivity of their labor has also been a factor.

Extensions in variety-chain-store type of operation to include a greater amount of apparel and semistyle merchandise have also resulted in increased marking and handling

Table 1
Dollars in Billions

Year	Total Retail Trade	Variety Stores	% of Total Retail Trade
1954	$170.806*	$3.015*	1.76
1953	170.700	3.094	1.81
1952	164.090	2.996	1.82
1951	158.220	2.856	1.81
1950	143.689	2.587	1.80
1949	130.721	2.506	1.92
1948	130.521	2.507	1.92
1947	119.604	2.322	1.94
1946	102.488	2.158	2.11
1945	78.034	1.845	2.36
1944	70.208	1.774	2.53
1943	63.235	1.642	2.60
1942	57.212	1.536	2.68
1941	55.274	1.320	2.39
1935	32.791	0.873	2.66

*Preliminary.

costs, as well as stepping up markdowns, which at one time were almost nonexistent for the variety chains. Rising general expenses, as have affected all types of business, also took their toll, especially as the stores were unable to increase their initial markup sufficiently to offset these rising expenses.

TREND TOWARD INCREASED ADVERTISING

The trend toward increased advertising, which at one time the variety stores did not engage in, is another factor that must be considered in the declining operating margin. Although these conditions are partly of only historical interest, their importance comes into focus when one considers that little change can be seen in them.

The changing variety-chain-store picture makes it possible that the narrowed operating profit margins are more likely to be the "normal," or possibly contract further, than they are to be restored to their former more attractive level. This condition reduces the investment quality of the issues.

CHANGING VARIETY PICTURE

The decrease of operating profit margins is only partially a reflection of the rising expenses that have beset the variety-chain-store field. The contraction also partially reflects the subtle but material change that has taken place in the variety chain stores' merchandising picture. This deflection has been gradual over the past number of years, but its effect is to make prospects for the field considerably different from what they were in the past.

In an effort to maintain their sales picture in a changing retail market (and this effort, as shown earlier in the report, has been far from successful), the variety chains have made three major transitions in operation over the past number of years.

Companies have substantially increased the types of merchandise handled. From concentrating at one time on nonstyle items, which could be sold over the retail counter with the minimum of sales effort, the stores have largely broadened their lines to include a great number of items that require a certain amount of style sense and some selling ability. In connection with this, it is interesting to note that, whereas apparel and accessories plus notions and dry goods accounted for 39.06% of the average variety-chain-store sales in 1939, these items accounted for 48.4% in 1953, and possibly even a greater amount in 1954.

RAISING OF PRICE LINES

The second major change was the substantial raising of price lines carried. From the old 5-and-10-cent store operation, which served so well during the early 1930's, the chains have lifted their limits not only proportionate to the general rise in price levels, but up to price brackets that place many of the stores literally in the major department-store field.

These increases not only necessitate larger inventories in relation to sales, but, more important, frequently entail the entrance into style merchandise, with its greater dependency on better selling talent than the variety store is able to give to it, and the inherent larger markdowns which are part of apparel retailing. Stock shortages, particularly from pilfering, which were never a great problem of the variety chains when the individual item was small in dollar value, assume greater interest when the items begin to have values from $1 to $10 and higher. Though in itself this factor is of only minor significance, its cumulative impact when added to the other factors makes it worthy of mention. Other costly services such as "layaways" and installment selling are also beginning to creep in.

TREND TO LARGER STORES

The third major shift has been the trend to substantially larger stores. In itself, this trend is extremely worth while and should be beneficial to the chains, once programs have been fully carried out. The expense of the transition, however, especially during the current period of high building costs is substantial. The benefits may be said to be relatively negative, in that they prevent further deterioration of position, rather than giving a greater boost to the business.

Furthermore, the trend toward larger stores has posed a problem of obtaining adequate space in key shopping areas, which is a prerequisite for the location of variety chain stores. To some degree, this has been ameliorated by the growth of suburban shopping areas, into which many of

Table 2. Operating Profit Margins, Per Cent*

Year	H. L. Green	S. S. Kresge	S. H. Kress	G. C. Murphy	Neisner[+]	Woolworth
1953	8.0	9.4	12.3	10.7	5.3	8.4
1952	8.7	10.3	12.1	9.8	5.4	9.0
1951	8.9	10.8	12.4	12.2	5.5	9.5
1950	10.6	12.8	13.9	12.8	6.7	10.2
1949	9.5	11.2	11.2	11.5	5.3	9.6
1948	10.2	13.0	13.7	12.2	6.0	11.0
1947	10.8	13.5	14.5	12.5	7.2	11.4
1946	12.2	15.3	15.0	13.0	9.2	11.8
1945	11.8	15.8	14.4	13.8	8.6	11.8
1944	11.6	14.9	16.7	15.0	8.8	11.7
1943	10.9	14.4	15.5	13.2	7.5	10.9
1942	10.8	14.0	15.5	14.3	7.7	11.8

*Based on earnings, before depreciation, amortization, income taxes, or special reserves.

[+] Includes income from rents.

Table 3. Index of Sales and Earnings
6 Major Variety Store Chains
1945-49 = 100

Year	Sales	Net Income
1953	126.5	80.4
1952	125.0	82.8
1951	120.0	86.0
1950	111.1	105.0
1949	108.8	99.5
1948	109.5	117.2
1947	102.4	113.0
1946	96.0	112.2
1945	83.0	58.0
1944	80.8	55.4

the companies are moving. Nonetheless, the trend has brought about, in many instances, increased rental costs and, in some instances, reduced suitability of location.

CURRENT TRENDS

Nor have the variety chains apparently been able to do very much to counteract the adverse trend of sales and profit margins. A number of the bigger companies are experimenting with self-service stores; an increasing number of stores are being changed over to this type of operation. Part of this arises out of an attempt to counteract some of the business that has been lost to the supermarkets.

Actually, the variety chains are not set up to put into effect a true self-service operation. Physical layouts do not lend themselves to this type of merchandising, nor do a great number of the items carried fit into this picture. At best, a higher degree of self-selection can probably be achieved, and some checkout method of payment can be undertaken.

The results to date on self-service operation appear to indicate that very little in the way of reduced selling costs is achieved by the operation. At best, the method would appear to bring about a higher average check and faster customer service, but, here again, the method tends to bog down when business piles up, as it does on peak days.

The other moves being made by the chains continue along the lines that have been instituted over the past number of years: namely, the handling of generally higher-priced merchandise, and the broadening of the lines carried to include more and more apparel and accessories. The adverse aspects of these merchandising moves are narrowed operating profit margins and greater earnings vulnerability in times of reduced purchasing power.

As shown in Table 3 of the index (1945–49 = 100) of sales and net earnings of six of the leading companies in the field, the net income realized in relation to the sales trend has been particularly distressing over the past number of years. A large portion of this condition arises from the contraction of operating profit margins.

AN ADDITIONAL FACTOR

An additional factor, however, has been the increase in corporate taxes, which the variety chains have been unable to pass along in price, and hence have mainly come out of the profits. Nor has this impact been particularly the result of excess profits taxes. In the years of 1952 and 1953, many of the major chains paid no excess profits taxes, and for even those that did, such as S. S. Kresge and G. C. Murphy, the excess profits tax burden was extremely light. As no reduction in corporate taxes will take place this year, and no major reduction would appear indicated for the next few years, it would appear likely that this burden will continue to handicap the earnings of the variety chains.

It is interesting to note in Table 3 that, whereas the sales of the six companies comprising this index rose steadily for each year from 1944 through 1953, with the exception of 1949, and for 1953 were 26.5% greater than for the base period, net income has shown a direct opposite trend. Despite the gain in sales over the past ten years, net income has been declining in each year since 1948, with the exception of 1950. In 1953 the index stood at 80.4, compared with the 1948 peak of 117.2, and 19.6% below the base period!

In other words, despite a reasonable gain in sales, there was a sharp drop in profits. Preliminary indications fail to show that this condition was altered in 1954, and there are no signs yet that the condition will be satisfactorily reversed in the reasonable future.

CONCLUSION

In conclusion, it appears that basic longer-term shifts in the character of the variety-chain-store field have subtly changed what was once believed to be the fundamental nature of the industry. Position in the total retail-sales picture is being whittled down, and profit margins are declining, while the previous relative imperviousness to business declines has been materially altered. Under such circumstances, and notwithstanding the price declines in the shares, many of the leading concerns no longer fulfill their "defensive" function.

AMPHENOL
AMERICAN PHENOLIC CORPORATION
At a meeting of the Board of Directors of American Phenolic Corporation held today a dividend of twelve and one-half cents per share was declared, payable April 29, 1955, to the shareholders of record at the close of business April 15, 1955. The transfer books will not be closed.
Dated at Chicago, Feb. 28, 1955.
CARL V. WISNER, JR., *Secretary*

ALLEGHENY LUDLUM STEEL CORPORATION
Pittsburgh, Penna.
At a meeting of the Board of Directors of Allegheny Ludlum Steel Corporation held today, February 3, 1955, a dividend of fifty cents (50c) per share was declared on the Common Stock of the Corporation, payable March 31, 1955, to Common stockholders of record at the close of business on March 1, 1955.
The Board also declared a dividend of one dollar nine and three-eighths cents ($1.09375) per share on the $4.375 Cumulative Preferred Stock of the Corporation, payable March 15, 1955, to Preferred stockholders of record at the close of business on March 1, 1955.
S. A. McCaskey, Jr.
Secretary

LION OIL COMPANY
LION
A regular quarterly dividend of 50¢ per share has been declared on the Capital Stock of this Company, payable March 16, 1955, to stockholders of record February 25, 1955. The stock transfer books will remain open.
E. W. ATKINSON, *Treasurer*
February 8, 1955.

UNION CARBIDE
AND CARBON CORPORATION

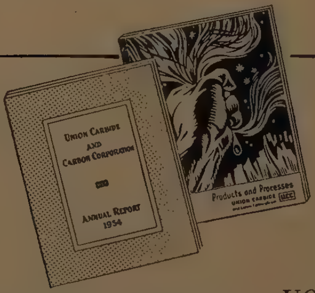
*1954 Annual Report Summary**

CONDENSED INCOME STATEMENT

	1954	*1953*
Sales	$923,693,379	$1,025,833,041
Total Income	946,174,299	1,048,157,344
Cost of Goods Sold, Selling, General, and Administrative Expenses	668,418,442	733,528,658
Depreciation and Amortization	93,712,849	75,351,702
Interest on Promissory Notes	11,913,750	11,517,083
Net Income Before Federal Income Taxes and Renegotiation	172,129,258	227,759,901
Provision for Federal Income Taxes and Renegotiation	82,349,987	124,976,459
Net Income	89,779,271	102,783,442
Net Income per Share	3.10	3.55
Dividends Paid	72,381,985	72,235,535

CONDENSED BALANCE SHEET

Assets		
Total Current Assets	$553,594,053	$510,399,171
Fixed Assets After Accumulated Depreciation and Amortization	675,518,610	658,392,229
Investments in Affiliates and Foreign Subsidiaries	15,862,794	15,699,522
Deferred Charges	6,660,502	6,101,408
Patents, Trade-Marks, and Goodwill	1	1
	$1,251,635,960	$1,190,592,331
Liabilities		
Total Current Liabilities	$156,946,120	$207,130,929
2.70% Promissory Notes	120,000,000	130,000,000
3.75% Promissory Notes	300,000,000	200,000,000
Reserve for Contingencies	——	6,381,098
Capital Stock—		
28,388,894 shares (28,320,919 shares in 1953)	212,662,021	210,173,350
563,900 shares (631,875 shares in 1953) held by the Corporation as collateral under the Stock Purchase Plan for Employees	23,775,439	26,264,110
28,952,794 shares	236,437,460	236,437,460
Less present amount of Agreements	23,419,484	25,966,255
	213,017,976	210,471,205
Earned Surplus	461,671,864	436,609,099
	$1,251,635,960	$1,190,592,331



*Copies of the complete 1954 Annual Report of Union Carbide and Carbon Corporation will be furnished on request. Included with the report is an illustrated booklet that describes the Corporation's products—Alloys, Carbons, Gases, Chemicals, and Plastics—and how they are produced from nature's raw materials. For copies of the report and booklet, please write to the Secretary, Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y.

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SYNTHETIC ORGANIC CHEMICALS • ELECTROMET Alloys and Metals • HAYNES STELLITE Alloys • PREST-O-LITE Acetylene

An Application of Electronic Computers to Economic Time-Series Analysis

JULIUS SHISKIN

STUDENTS OF BUSINESS CONDITIONS have long been troubled by the difficulty of distinguishing between seasonal and cyclical changes in utilizing business indicators. * A tool is now available which greatly facilitates the making of such distinctions—the high-speed electronic computer. New methods of measuring seasonal and cyclical changes have not yet been developed. But known methods are now being applied on a mass basis, at low cost, and at a lightning rate of speed.

THE PROBLEM

At the beginning of 1953, the Administration became especially concerned about the status of general business. The Government was trying to decide whether or not the United States was coming out of a mild recession. The President had said earlier in the year that he would wait until March or April to see whether an upturn in business activity occurred before deciding on further Government actions to stimulate business.

One of the most vexatious problems the President's economic advisers faced was to determine whether changes in business in April and May, as compared to the months immediately preceding, were better or worse than normal seasonal changes. How could the changes that were normal for these months be taken into account in judging the underlying trend of business? For example, to what extent could a rise in retail sales in April be attributed to the usual Easter increase in sales, and to what extent could it be attributed to an upturn in the business cycle?

Many methods of making seasonal adjustments have been developed. They have in common one quality—they are laborious to compute, and, in general, the better the method, the more laborious the computations. The adjustment of a monthly economic series for seasonal variations has been a time-consuming job, and many series are involved. Thus, the *Survey of Current Business*, issued by the Department of Commerce, carries several thousand current monthly economic series: for example, on unemployment, the production of steel, the consumption of cotton, inventories of manufactured goods, and the price of copper.

Last summer a Congressional committee held hearings on the adequacy of economic statistics. At these hearings the principal users of current economic series (for example, the chairman of the Council of Economic Advisers and the chief economist of the National Industrial Conference Board) complained that many of the monthly series published by the Government were not adjusted for seasonal variations at all; many others were adjusted by crude methods; and, for still others, the seasonal adjustments did not reflect the most recent years' experience. For this reason, they stated, it was hard to make good judgments about business conditions in current months.

THE SOLUTION

The U. S. Bureau of the Census saw a way of solving this problem. This way was to use its high-speed electronic computer, Univac. The Univac is a digital computer. It contains facilities for recording, storing, transferring, calculating, and comparing numbers and letters. It computes on the binary scale and automatically converts from and to the decimal scale. It utilizes electronic tubes to receive and record instructions and data on magnetic tape.

The Univac performs arithmetic computations at a very high rate of speed; its checking circuits prevent the propagation of errors; and its operation is almost completely automatic. It will select the appropriate one of several series of computations, according to the results of earlier computations.

Computers of this class are at their best in performing operations involving long series of sequential or iterative computations on relatively small numbers of original observations. The computation of seasonal adjustment factors and of seasonally adjusted series fits this requirement very well, and, moreover, requires only a small amount of the input operations (punching and card-to-tape conversion). Although the output of data in Univac seasonal method 1 is large relative to the input, it does not impose a serious burden on the present uniprinters and will easily be handled by the Census Bureau's high-speed printer when it is delivered later this year.

YIELDS MOVING SEASONAL FACTORS

The first method programmed for the Census Bureau work is an adaptation and elaboration of the standard ratio-to-moving-average method and yields moving seasonal factors. Under this method, the original observations are viewed as a composite of trend, cyclical, seasonal, and irregular components.

A series reflecting the trend-cycle components is estimated by a 12-month moving average, and divided into the original observations to obtain a series reflecting the seasonal and irregular components. For each month, a moving average curve is then fitted to the time series representing the seasonal-irregular component, in order to obtain the seasonal factors alone.

An iterative procedure is used: First, the seasonal factors obtained are divided into the original observations to obtain a preliminary seasonally adjusted series, representing the trend-cycle-irregular components. This series is, in turn, smoothed by a 5-month moving average, to provide a more flexible trend-cycle curve than the 12-month moving average. The sequence of computations first made on the 12-month moving average is then repeated on the 5-month average to yield the final seasonally adjusted series.

Altogether, the method yields 19 tables which show the successive stages of the computations from the original observations to the final seasonally adjusted series. Included are five different moving averages, two sets of ratios to moving averages, two centered and two uncentered sets of moving seasonal factors, two seasonally adjusted series, and five tests of the work.

For a ten-year monthly series (for example, shoe production, for each of the months from January 1945 to December 1954) this task requires about 2,500 computations. If the checking is counted, about 5,000 computations are involved. It would take a clerk about 4,000 minutes, or about a week and a half, to make these calculations, check them, and record the results.

Univac makes and checks these computations in about one minute and at nominal cost. A high-speed printer will not only print the results, but also will make charts adequate to serve as visual aids in interpreting them, all at a rate of speed adequate for keeping up with the Univac computations. In view of the fact that thousands of series are involved, electronic equipment provides, for the first time, a practicable way of making extensive and up-to-date seasonal adjustments of all current economic series.

The Census Bureau completed its experimental work last October and offered the service to other Federal statistical agencies at cost. This offer was quickly accepted by most Federal agencies involved in this kind of work. The Census Bureau has already seasonally adjusted about 500 series, covering production, labor force, prices, inventories, orders, and exports and imports, and representing activities in almost all industries—for example, agriculture, manufacturing, and trade.

For most series, method 1 appears to be yielding seasonal adjustments of high quality. For some series, however, modifications of this method are necessary.

The method makes certain assumptions regarding the nature of the forces affecting each series. These assumptions are probably applicable to most economic series, but not to all.

For example, method 1 assumes that the relations between seasonal and cyclical forces are relative rather than absolute. For the relatively small number of economic series for which this assumption is not valid, poor seasonal adjustments may result. For this reason, professional review of the results is necessary.

FUTURE TIME-SERIES COMPUTATIONS

If the potentialities of electronic computers are fully exploited, business analysts can soon have available seasonally adjusted series to supplement original observations for most economic series. As a by-product, they can also have moving averages tracing out the underlying movements of these series, and seasonal factors and ratios to moving averages for use in making seasonal adjustments of current statistics.

Great as is the advance that this will represent in our statistical records of economic activities, it may be only the beginning of the contribution of electronic computers to economic time-series analysis. Some potential developments are described in the remainder of this article.

Studies being made in various Federal agencies and private research organizations are expected to lead to improvements in the present seasonal method. An attempt is also being made to draw more fully on the capacities of Univac to develop a general method capable of eliminating all traces of seasonality from the complete array of monthly and quarterly economic series.

Seasonal method 1 takes advantage primarily of the high-speed, low-cost features of Univac. Method 2 will, in addition, take advantage of the ability of this machine to carry out automatically a sequence of computations in which the results of early computations determine, in turn, the course of subsequent computations.

This will be accomplished by building into the method the computation of special measures, which feed back instructions for selecting the most appropriate technique for each successive stage of the computations. These special measures would be calculated at various stages of the work where it is common practice, at present, to exercise professional judgment. The considerations on which professional judgments are currently based will be made more explicit, and quantitative bases will be established for mechanically approximating those professional judgments.

Alternative procedures, each appropriate under different conditions, will be placed on the computer shelves to be put into the operations when the signal is given. The illustration of this technique which follows is intended to indicate the approach rather than a definite procedure to be followed.

An important element in using the monthly movements of a current economic series as a measure of the business-cycle change is the relative importance of the cyclical and the irregular factors. Thus, a series with a relatively large irregular component is less useful in judging the cyclical changes than a series with a relatively small irregular component.

An index of the relations between the average magnitude of the month-to-month cyclical movements and the month-to-month irregular movements would, therefore, be computed. This measure would be used later to determine the period of the moving average to be applied in calculating seasonal indexes. It would, along with a comparison every month of the average cyclical change and the percentage change in the seasonal index, also be helpful in judging the usefulness of the seasonally adjusted series as an indicator of changes in general business conditions.

METHOD OF COMPUTATION

This measure could be computed as follows: The changes in a flexible smooth curve of a seasonally adjusted series from month to month, taken in percentage form and without regard to sign, would be computed and averaged. This would provide a measure of the average magnitude of the cyclical component.

For the irregular component, the ratios of a seasonally adjusted series (method 1, second round) to this flexible smooth curve would be computed; the average of the monthly changes in the ratios, again taken in percentage form and without regard to sign, would provide a measure of the average magnitude of the irregular component. The average irregular change, divided by the average cyclical change, would provide an index of cyclical-irregular relations.

PERIOD WOULD VARY

The period of the moving average would then vary according to the index of the cyclical-irregular relations; for example, series with a low index might take a 5-month moving average; series with a somewhat higher index, a 7-month moving average; and series with a still higher index, a more sophisticated smooth curve, say a Spencer 15-term formula. In view of the fact that the relations between the cyclical and the irregular factors may vary significantly for different parts of a series, an attempt will also be made to develop a moving average made up of different numbers of terms for different parts of the series.

For example, with a twenty-year series, the moving average might be three terms for, let us say, the first five years, 7 terms during the next five years, and 5 terms during the most recent ten. This would be accomplished by calculating a moving average with "feelers"—the calculation of the cyclical-irregular index would precede that of the moving average, and the term of the moving average during different parts of the series would automatically be determined by the cyclical-irregular index calculated for different parts of the series.

Other developments in time-series measurement will probably be along several different lines. First, electronic computers are reducing the cost of statistical editing and tabulation. Although these processes do not represent most of the cost of statistical work, they do represent a significant portion. Consequently, it may be possible, with given budgets for statistical work, to fill gaps in existing information.

New measures of the cyclical behavior of individual time series and of the relations among different series may be developed. Thus, the relations of each important series, not only to a standard set of business-cycle turning dates, such as the National Bureau of Economic Research reference dates, but also perhaps to all other important series, may be calculated.

Frickey's method of combining individual series may be applied, not only to his 13 quarterly series, but to a thousand monthly series as well. Indexes of the diffusion of cyclical movements, more comprehensive and more sensitive than those now computed by the NBER, may come into existence.

Again, a host of new measures of the behavior of groups of individual reporting units in relation to their aggregate are now possible for many current economic series. Statistical collection agencies could present monthly measures of the dispersion of the rates of change in the activities of individual establishments in comparison to their average rate of change, frequency distributions showing the proportion of establishments experiencing various different rates of change, partition values of rates of change, and similar measures of the anatomy of business-cycle indicators.

Finally, and perhaps most important of all, entirely new measures of economic events, which improve our ability to predict future business fluctuations, may be developed. The potentialities for new types of economic time-series analysis appear to be limited only by the quality of the original observations, by the scope of human imagination, and by the capacity of the human mind to absorb information.

* * *

March 1792 . . . Stock Exchange office opened at 22 Wall Street.

Wall Street has become a necessity as a healthy stimulant to the rest of the business of the country. Wall Street has furnished the money that has set the wheels of industry in motion over the vast continent.—*Clews*

A Stock Exchange furnishes to buyers and sellers of stocks and bonds opportunities for the transaction of their business not otherwise obtainable.
—*Matthew Marshall,* 1903

"Study of values, and discernment of financial conditions are factors of real importance in stock operations."

To deny that the Stock Exchange is intimately linked with the development of this country stamps a man as ignorant of the very causes of its being.—*C. Stedman*

On February 25, 1817, thirteen brokers in the office of Mr. Beebe passed a resolution to start a new association, selected Nathaniel Prime as president of the New York Stock and Exchange Board.

ANNUAL REPORT for 1954 of P. LORILLARD COMPANY

Makers of Fine Tobacco Products

"America's First Family of Cigarettes"

CONSOLIDATED EARNINGS

	Year Ended December 31	
	1954	1953
Revenues:		
Net Sales	$231,046,695	$253,933,462
Other (net)	150,190	152,148
Total Revenues	$231,196,885	$254,085,610
Costs and Expenses:		
Cost of Goods Sold, Selling, Advertising, and Administrative Expenses	$215,936,851	$232,777,823
Interest	2,630,891	2,520,216
Federal Income Taxes	6,122,000	9,503,000
Federal Excess Profits Tax	—	1,712,000
State Income Taxes	165,000	379,000
Total Costs and Expenses	$224,854,742	$246,892,039
Net Earnings	$ 6,342,143	$ 7,193,571
Dividends on Preferred Stock ($7.00 per share in each year)	686,000	686,000
Earnings Applicable to Common Stock ($1.98 per share in 1954, $2.28 in 1953)	$ 5,656,143	$ 6,507,571
Dividends on Common Stock ($1.60 per share in each year)	4,564,450	4,457,477
Remainder of Earnings (retained for use in the business)	$ 1,091,693	$ 2,050,094

Provision for depreciation amounted to $1,156,837 in 1954 and $1,051,457 in 1953.

CONSOLIDATED BALANCE SHEETS

ASSETS

	December 31	
CURRENT ASSETS:	1954	1953
Cash	$ 7,812,959	$ 7,622,449
Accounts receivable—customers (less $582,908 in 1954 and $660,839 in 1953 for doubtful accounts and cash discounts)	10,456,765	11,629,297
Other accounts receivable	657,431	453,609
Inventories (at average cost):		
Leaf tobacco	127,432,128	116,690,466
Manufactured stock and revenue stamps	12,341,618	14,188,749
Materials and supplies	4,415,694	4,847,955
Total current assets	$163,116,595	$155,432,525
PROPERTY, PLANT, AND EQUIPMENT		
(As adjusted December 31, 1932 by authorization of stockholders, plus subsequent additions at cost, less retirements):		
Land	$ 991,874	$ 991,874
Buildings and building equipment	9,546,357	7,979,883
Machinery and equipment	16,979,834	15,421,127
	$ 27,518,065	$ 24,392,884
Less accumulated depreciation	8,842,842	8,174,245
Total property, plant, and equipment—net	$ 18,675,223	$ 16,218,639
PREPAID EXPENSES AND DEFERRED CHARGES	$ 1,529,459	$ 1,387,373
UNAMORTIZED DEBENTURE DISCOUNT AND EXPENSE	$ 888,275	$ 952,550
BRANDS, TRADE MARKS, AND GOODWILL	$ 1	$ 1
TOTAL	$184,209,553	$173,991,088

LIABILITIES

	December 31	
CURRENT LIABILITIES:	1954	1953
Notes payable (banks)	$ 40,700,000	$ 25,700,000
Accounts payable	4,288,466	3,450,467
Debentures due within one year (less in 1954 $100,000 held by Company)	850,000	950,000
Accrued taxes	6,851,057	12,042,934
Accrued payrolls	616,643	1,225,779
Accrued interest	467,437	476,438
Other accrued liabilities	466,196	317,409
Total current liabilities	$ 54,239,799	$ 44,163,027
LONG-TERM DEBT:		
Twenty Year 3% Debentures, due October 1, 1963 ($600,000 to be retired annually to 1962)	$ 14,200,000	$ 14,800,000
Twenty-five Year 3% Debentures, due March 1, 1976 ($350,000 to be retired annually to 1975)	14,300,000	14,650,000
Twenty-five Year 3¾% Debentures, due April 1, 1978 ($675,000 to be retired annually 1956-1977)	22,500,000	22,500,000
Total long-term debt	$ 51,000,000	$ 51,950,000
CAPITAL AND RETAINED EARNINGS:		
7% Cumulative Preferred Stock (par value $100 per share)—authorized 99,576 shares; issued 98,000 shares	$ 9,800,000	$ 9,800,000
Common Stock (par value $10 per share)—authorized 5,000,000 shares; issued 2,852,854.89 shares	28,528,549	28,528,549
Additional paid-in capital (premiums less expenses on common stock issued)	8,085,578	8,085,578
Earnings retained for use in the business	32,555,627	31,463,934
Total capital and retained earnings	$ 78,969,754	$ 77,878,061
TOTAL	$184,209,553	$173,991,088

As a result of restrictions contained in the debenture indeptures on the payment of dividends on common stock and the purchase, redemption, or retirement of such stock, the amount which could have been expended for such purposes at December 31, 1954 was limited to approximately $10,641,000.

We'll be glad to send you a copy of our illustrated Annual Report for 1954. Write P. Lorillard Company, 119 West 40th Street, New York 18, N. Y.

P. Lorillard Company

AMERICA'S OLDEST TOBACCO MERCHANTS · ESTABLISHED 1760

Other Leading Products of P. Lorillard Company

Other Products

Cigarettes
[redacted]
[redacted]

Smoking Tobaccos
[redacted]
INDIA HOUSE

Cigars
[redacted]
[redacted]
THE ACTS

Chewing Tobaccos
[redacted]
HAVANA BLOSSOM

Providing Security for the Security Analyst

GUSTAVE SIMONS

SHOEMAKERS' CHILDREN go barefoot, and, all too often, security analysts have inadequate security for their families and themselves. A critical reason for this is the unfavorable tax exposure of the average financial analyst.

The manufacturer frequently has the tax shelter of a certificate of necessity or accelerated depreciation. The real estate speculator has depreciation offsets which cut the taxes on his real estate income. The oil operator has the deduction for intangible drilling expenses and then the added benefit of the allowance for depletion.

Usually none of these special advantages are available to the financial analyst. The purpose of this paper is to review certain methods of tax-favored capital formation particularly available to the security analyst.

QUALIFIED PENSION TRUSTS

The tax-favored capital formation implications of qualified pension trusts are well known. The contribution of the employer is deductible but is not taxed to the employee beneficiary until the benefits are received. Furthermore, such benefits, under certain circumstances, are taxed as long-term capital gain.

If the investments of the pension trustee are guided by an astute security analyst, the earnings frequently outstrip the initial actuarial calculations, and, if the program is properly set up, benefits may be increased. In one case, such a program permitted the increase of benefits from approximately 35% of average employee earnings to 50% of the earnings in the five years of highest compensation. Since the trust is immune from tax on dividends, interest, or capital gains, it is in a position particularly to profit from effective investment planning.

Many financial analysts are in the employ of stock exchange firms. Until recently such firms could not incorporate. Since partners or individual proprietors are not "employees," and therefore cannot participate in the benefits of a qualified pension plan, such firms have fallen far behind the times in the adoption of qualified pension plans.

Even with permissible incorporation, most stock exchange firms have preferred to retain their traditional form of partnership organization, and thus many have forestalled installation of pension plans. There are two ways of avoiding such limitations for the financial analyst employed by partnerships.

In the first place, it is possible, through a bank-financed insurance and annuity program, to obtain for partners and their employees substantially all the tax benefits of a qualified pension plan. Since such a program does include the partners, there is more incentive for a stock exchange firm to install it. Further details of bank-financed insurance and annuity programs will be discussed later in this article.

There is a second available procedure. This is to set up a service corporation to handle the function of financial analysis and the publication of news letters going to the customers of the stock exchange firm.

There is nothing in the rules of the average stock exchange which precludes this. Such a satellite corporation can function side by side with the stock exchange firm in its main partnership form.

The partnership can compensate the service corporation for its services. Great care must be taken in organizing this relationship so that the corporation does not become subject to a penalty tax as a personal holding corporation.

However, this can definitely be accomplished through proper planning. Payments by the stock exchange house to the service corporation will be deductible.

The service corporation can employ the financial analysts and, in fact, some of the partners themselves, and pay them reasonable compensation for their services. The payments from the stock exchange firm should not only cover the overhead such as these salaries, but a reasonable profit as well.

As long as the payments are reasonable in amount and a profit is not inordinate the mere fact of common control of the stock exchange firm and the service corporation will not interfere with the tax recognition of the relationship. Decision after decision in all of our courts has recognized this.

Out of the profits, the service corporation can provide contributions for a qualified pension plan for its employees including financial analysts, and even the partners of the stock exchange house who render services to the corporation. Accordingly, one of the first assignments for a security analyst seeking tax-favored capital formation for himself is to urge the analysis of the availability of a qualified pension trust under the foregoing principles.

PROFIT-SHARING PLANS AND JOINT CAPITAL TRUSTS

The qualified profit-sharing trust has all the tax advantages of a qualified pension plan. However, the contributions are not predicated on the creation of an actuarially computed pension but are rather dependent on the profits of the employer.

Such contributions are deductible but not taxable to the employee until distribution out of the trust is made. Furthermore, the income and capital gains of the trust are exempt from tax.

A joint capital trust is similar to a profit-sharing trust, except that usually contributions into the trust are made by the employee, and the assets of the trust are frequently invested in whole or in part in the securities of the employer. This has a double-barreled incentive factor, since increased earnings of the employer are reflected not only in increased contributions into the trust but also in greater dividends on the shares already held by the trust.

Furthermore, the employer may obtain a deduction for contributions of shares of stock themselves rather than cash. This creates a positive improvement in the cash or working capital position. For a corporation, the tax is reduced by 52% of the market value of the shares contributed, without any equivalent outlay of cash.

For a thorough and extensive review of the joint capital trust the reader is referred to an article of mine appearing in the March 1953 issue of the *Harvard Business Review*, entitled, "Joint Capital Trusts." Reprints may be obtained from Creative Age Corporation in New York or Westport, Connecticut.

Where the financial analyst is in the employ of a stock exchange firm, the same problem presents itself with a profit-sharing trust or a joint capital trust as with a qualified pension plan, namely: that the partners cannot be participants. Again, however, this problem can be solved through the use of the service corporation.

ANOTHER TAX ADVANTAGE

Incidentally, another tax advantage of a service corporation is that its income is frequently taxed at a lower rate than the partners' income derived from the partnership. Thus, capital formation for the partners who own all or some of the stock of the service corporation is also provided. This is an added incentive for the use of capital formation vehicle.

One corporation which publishes a widely known security analysis service has adopted a profit-sharing trust with an added factor of great interest. This trust permits voluntary contributions by the employee participants.

The contributions of the employer are credited to the account of the participants in proportion to their salary, regardless of whether or not they elect to make contributions of their own funds to the trust. The contributions may be 1, 2, 3, 4, or 5% of the compensation of the participants. The rate of contribution may be varied from time to time, or contributions may be stopped altogether.

The important point is that the funds contributed by the participant are invested by the trust, and the income and capital gains earned by the trust on such contributions accumulate free of tax for the benefit of the participants. It has been the practice of the trust to invest in a highly profitable mutual investment fund, and the tax-free yield enjoyed by the participants on their voluntary contributions has thus been very gratifying. The Internal Revenue Service has ruled that employees' contributions may be withdrawn at any time, but that the earnings and profits of the trust attributable thereto must remain until employment is terminated.

The reason for this limitation is to prevent such a program from competing unfairly with open-end mutual funds, whose annual income is currently taxable to the participants in such funds. Nevertheless, the program is a very inviting one.

BANK-FINANCED INSURANCE AND ANNUITY PROGRAMS

One of the most popular, and certainly one of the most effective, forms of tax-favored capital formation is the bank-financed insurance and annuity program. So popular is this method of capital formation that Creative Age Corporation has found it necessary to marshal over 150 banks throughout the United States to provide the various forms of financing used, as well as arranging special forms of policies of insurance or contracts of annuity.

In effect, bank-financed insurance and annuity programs render the cost of insurance or annuities deductible. Thus, such programs are ideally suited for the capital formation needs of financial analysts and their asociates for three reasons:

1. The financial analyst may adopt the program individually, without procuring the adoption of a pension or a profit-sharing plan by his employer.
2. If the financial analyst is employed by a partnership, the partners may participate in the benefits, which they cannot do in pension or profit-sharing plans.
3. Employee security may be provided through this method of financing at a lower after-tax cost than through qualified pension or profit-sharing plans.

The program is based on the purchase of life insurance or annuity contracts, with premiums paid through loans (which may be nonrecourse if necessary), instead of from capital or after-tax income. The interest on the premium loans is deductible for tax purposes.

Since the premium loans are a charge against the amount of insurance or annuities collectible, the face amount acquired must, in the first instance, be considerably higher than the ultimate protection desired. However, since the purchaser merely pays the interest on the premiums rather than the premiums themselves and since such interest is deductible, the cost of the benefits is, in almost every instance, much less than in the usual method of acquisition.

ONE OBJECTION TO PROGRAM

Initially, one of the objections to this program was the constantly decreasing amount of coverage. However, astute actuaries can combine a series of contracts in such a fashion that the contract becomes self-sustaining.

Recently, an individual 47 years of age earning $48,000 a year was able to provide a monthly annuity income for himself beginning at age 65 of $493 a month (ten years certain), pay the tax on his income, and be left with an expendable income of $27,664. Starting with $48,000, he ended with more than $27,000, and with his tax paid and the annuity financed.

Had he acquired the annuity in the usual, nondeductible fashion, he would have had to have a $69,000 income (instead of $48,000), in order to pay the requisite premium for the same annuity benefits, pay his tax, and end up with the same $27,000 plus. In short, this method of financing made it possible for this 47-year-old man in a $48,000 bracket to provide as much security for himself with the same currently disposable income as if he had earned $69,000, or $21,000 a year more. On the basis of a 49-week work year, the result of this type of programming would thus be the equivalent of 105 additional work days.

Recently a group of partners in a stock exchange firm wanted to insure the life of another partner, aged 62, for $100,000, so that capital would be available to buy his interest in the firm. Net insurance protection of $100,000 was acquired by various partners, each of them in separate tax brackets.

Since the cost of the insurance was deductible, the net after-tax costs varied with the tax bracket of each partner. The cost of $100,000 of protection on his 62-year-old partner was only $1,250 during the average year of the program to a partner in the 80% brackets. The average cost of another $100,000 of insurance on the same 62-year-old partner, after taxes, was $2,500 to a partner in the 60% bracket.

For a 52-year-old partner, the average annual after-tax cost of $100,000 of insurance protection was $1,444 to a partner in the 80% bracket, $2,288 to a partner in the 60% bracket, and $2,860 to a partner in the 50% bracket.

For a 35-year-old man, $100,000 of insurance protection had an average annual post-tax cost of $254.40 if he was in the 80% brackets, $508.80 if he was in the 60% brackets, and $636 if he was in the 50% brackets.

THE 50% BRACKET FOR ILLUSTRATION

For a corporation, the 50% brackets can be used for illustrative purposes with adequate accuracy. Of course, no one knows what future corporate tax rates are going to be, but a 50% assumption seems to be a fairly sound one.

Recently a corporation was carrying an annuity contract on the life of its president, which would pay a monthly income of $1,500 per month at 65. The premiums were not deductible. The average annual post-tax cost was $14,715. Through the introduction of the bank-financed program, the monthly annuity benefits were increased to $2,050, with no increase in the after-tax costs of the program to the corporation.

It should be emphasized that these programs provide not only insurance but also annuity benefits and may be used as follows:

1. By a corporation
   (*a*) For the life insurance benefit of its employees.
   (*b*) To provide annuity benefits for its employees.
   (*c*) To provide key man insurance for its own benefit.
   (*d*) To provide stock purchase insurance for its own benefit.
2. By a corporate stockholder to provide stock purchase insurance under cross-purchase agreements.
3. By a partnership
   (*a*) To provide insurance or annuity benefits for its employees.
   (*b*) To provide insurance and annuity benefits for the partners themselves.
   (*c*) To provide partnership interest purchase insurance for themselves, or each other.
4. By an employee, stockholder, partner, or individual proprietor to provide insurance or annuity benefits for himself.

All these calculations have been made on the basis of a 3½% interest rate, which is higher than has actually been charged by the banks during the last twenty years. However, it cannot be emphasized too emphatically that, in order to accomplish a stable long-range program, most exact financial planning is necessary. This is definitely not a job for an amateur.

FOUNDATIONS

Another excellent capital formation vehicle for financial analysts is the Economical Research Foundation. Some banks and other financial institutions have organized such foundations. These are nonprofit organizations dedicated to research and education in the field of economics and finance. Dividend and interest income and capital gains are tax-exempt.

If properly set up, contributions are deductible within the percentage limitations set up by the Internal Revenue Code (5% for corporations with a two-year carry-over for excess contributions, 20% for individuals, increased to 30% if the educational work is carried on as a regular school or university).

The cost of financing such foundations, in the first instance, can be sharply reduced through making contributions in securities that have appreciated in price. Deductions are measured by the fair market value of the security rather than by its cost.

No capital gain tax is payable on the appreciation in value. Through the use of appreciated securities for donation purposes, substantially greater contributions can be made at the same costs. Once the foundation has its initial capital, astute investment resulting in high tax-free dividends or capital gains will further increase the capital of the foundation.

MAY GIVE EMPLOYMENT TO ANALYST

The foundation may give employment to the financial analyst. Such employment can be part time as he approaches retirement or can be full time after retirement.

The absence of the necessity of making a profit reduces the pressure on the analyst. It permits him to retire without feeling that he has been thrown on the scrap heap.

One noted bank arranges for its executives to work part time for the foundation beginning at about age 55 and then full time at age 60. This carries them until their pensions commence at age 65.

A foundation may pay its employees reasonable compensation, and the Internal Revenue Code expressly provides for such reasonable compensation, *even when paid to the organizer and principal donor of the foundation.* There is nothing in the law that precludes such an organizer and principal donor from going to work for his own foundation as long as the compensation paid him is a fair and reasonable one, comparable to what other similarly situated foundations pay independent personnel.

In addition to cash compensation, such a foundation may deliver annually to its employee a fully paid nonforfeitable annuity. The cost of such annuity is not taxable to the employee, but, when the annuity income commences, it is taxable. However, such an annuity contract may be sold to a third party and a long-term capital gain taken.

Such foundations can also serve useful purposes in providing scholarships for the children of employees or for promising young talent. Such scholarship programs have found increasing favor in the physical sciences, and there is equal reason to encourage their use in the field of economics.

If the financial analyst is already fortunate enough to own securities providing a high dividend income, he is still faced with the problem of retaining an adequate portion of such income. At this point, the use of the capital formation vehicle known as the business holding company becomes attractive.

The Internal Revenue Code of 1954 has provided some relief for individual recipients of dividend income, by permitting a $50 exclusion and a credit of 4% of the balance against the tax due. For a taxpayer with $6,000 of dividend income, and other taxable income of $32,000 (joint return), the tax savings amount to $264.50.

The Government is still taking a large chunk of the dividend income—the taxpayer retains out of his $6,000 only $3,204.50. The balance has been paid in taxes. If we assume that the taxpayer's investment in the dividend-producing stock amounts to $100,000, his net after-tax yield is 3.2%.

INCREASE AFTER-TAX YIELD

By transferring his securities to a wholly owned corporation, in a tax-free transaction, the taxpayer can dramatically increase his after-tax yield. Corporations are entitled to an 85% dividends-received deduction for dividends from domestic corporations (which deduction cannot exceed 85% of taxable income). Since such a corporation would be subject to the personal holding provisions of the code if it had no other income, the corporation acquires rental property which wields *gross* (not net) rentals equivalent to the amount of the dividends.

Thus, assume a corporation with $6,000 of dividend income, and $6,000 of gross rental income (but not net income from rents). The corporate tax would be $270.

Of the $6,000 dividends received, $5,730 would be retained, compared with $3,204.50 of individual retention. After-tax yield is thus increased by almost 80%.

This increased retention can be used to pay off the mortgage on the realty acquired, thus building up equity, or it may be reinvested in other securities. Permissible accumulations of surplus under the new code, up to $60,000, eliminates a potential drawback.

Where funds are borrowed by the corporation to invest in stocks, the after-tax yield can be still further increased, since the interest paid is deductible, while the dividend income is, by virtue of the 85% deduction, virtually tax-exempt.

Thus, assume that the corporation borrows $60,000 at 3½%, to make an investment of $100,000 in stocks paying $6,000 in dividends. The schedule in the accompanying table shows that the net profit after taxes would be $4,260, which represents a yield of 10.65% on the investment of $40,000.

For this purpose, it is assumed that the corporation has other net income, against which to offset the interest deduction. Otherwise, the dividends-received deduction would be reduced by 85% of the amount of the interest paid.

At a proper time, the corporation can be liquidated and the capital gains tax paid on the surplus. This 25% cost factor must be taken into account in computing the after-tax savings of the program, which are, however, still considerable. Or, alternatively, if the corporation is kept alive and passed along to the next generation, the capital gain tax can be avoided entirely, since the decedent's heirs would acquire a stepped-up basis for the holding company's stock.

	Corporation in 30% Bracket
1 Investment in stock yielding 6% per annum	$100,000
2 Amount borrowed at 3½% per annum	60,000
3 Net investment	$ 40,000
4 Dividend income	$ 6,000
5 Tax thereon (4.5% rate)	270
6 Net dividend income after taxes	$ 5,730
7 Interest on borrowed money	$ 2,100
8 Tax reduction applicable to interest (tax rate times item 7)	630
9 Net cost of interest (item 7 minus item 8)	$ 1,470
10 Net profit after taxes on investment (item 6 minus item 9	$ 4,260
11 Yield on net investment (item 10 divided by item 3)	10.65%

Philanthropically inclined individuals can profit from the increasing surplus attributable to the increased retention factor by giving it away piecemeal. Thus, where the corporation retains $5,730 annually, in ten years it will build up a surplus of approximately $57,000.

A ten-year charitable program involving donation of the stock entitled to the surplus would result in average annual tax savings, to our 50% bracket taxpayer, of $2,850. This is almost as much as he retains presently from his dividends. Result: At practically no cost to himself, he endows his favorite charity with $57,000, while still retaining, through preferred stock holdings, his original interest in the corporation.

COUPON-DETACHED TREASURY BONDS

The Internal Revenue Code of 1954 made express provision for the detachment of coupons representing no more than one year's interest from bonds and their separate sale. Bonds with coupons detached in this way can be acquired at a discount.

If the financing of such acquisition is arranged appropriately with interest paid in advance, little or no margin is necessary. Even if the market in the bonds remains stable, the bonds should, after a year, advance from the discounted purchase price in an amount substantially equal to one year's coupons. The effect of such a transaction is thus to give the taxpayer deduction for interest paid plus a long-term capital gain.

Under appropriate circumstances it may also be possible to avoid or limit the market risk through appropriate "puts."

Through the use of either a "put" or astute market timing, the acquisition of coupon-detached Treasury bonds can create very substantial capital gains, with a marked reduction in tax and a marked improvement in capital formation. With the high degree of expert knowledge available to the experienced financial analyst, this is a method of capital formation well integrated into his background and special skills.

Furthermore, the use of such bonds for making contributions to foundations makes the combined effect of the program particularly inviting. Usually the success of the program is a combined function of the astuteness of the financial analyst in timing his purchases, his ability to make adequate "put" arrangements, and, particularly, his ability to arrange financing so that interest paid in advance does the job of margin deposits.

CALLABLE PREMIUM BONDS

If callable bonds (usually of a public utility) are acquired at a premium, appropriate bonds meeting the tests of the Internal Revenue Code permit the amortization of the difference between the purchase price and the call price in 31 days, even if the bonds are not called. Thus, if a bond is purchased at 110 and is callable at 101 on 30 days' notice, and if the bond is at least three years old, the owner may deduct from his ordinary income, if he properly elects so to do, 9 points, after the 30-day period has elapsed, even though the bond has not been called.

If the market then remains constant and he holds the bond for 6 months from the date of acquisition, he can sell it and take a 9-point capital gain. In effect, he has converted 9 points of ordinary income into 9 points of capital gain. Such bonds have in the past fluctuated violently in price, and it is advisable for the investor either to arrange a "put" or to take a simultaneous long and short position in different bonds which he anticipates will react in parallel fashion.

Should the investor have a short-term gain (or a capital loss carry-over from the prior year), the bonds may be sold immediately after the 31-day amortization period is over and a short-term gain realized, which can be offset against the short-term loss or the capital loss carry-over. Since this permits the disposition of a bond in a much shorter period, the market risk is thus sharply reduced.

One of the great disadvantages of our tax system is that capital gains are subject to a 25% tax, whereas capital losses usually do little or no tax good for the unfortunate investor. The use of callable premium bonds in the fashion indicated overcomes this disadvantage and, in effect, permits the investor to deduct his loss from ordinary income.

Putting it another way, the amortized premium is deducted from ordinary income, and the offsetting gain is balanced against the capital loss. The availability of this procedure might make certain speculative transactions more attractive from a tax point of view than the usual, "Heads I win, tails you lose," position of the tax collector.

ACCUMULATED DIVIDEND SHARES

Corporations with preferred stocks with accumulated preference dividends from time to time declare out substantial amounts of these dividends. Both before and after the declaration, the price of the shares is apt to advance sharply to reflect the dividend. When the stock goes ex-dividend, the price of the stock falls sharply, usually back to its natural level. Such shares have substantial capital formation functions.

For example, if an investor has capital losses of a short-term nature, or capital loss carry-over from prior year, with no capital gains to offset them, it is possible for him to go short of such a stock immediately before its exdividend date, and then cover his short sale immediately thereafter. Thus, he enjoys a short-term profit to offset his capital loss, which otherwise might provide no tax advantage to him, and he is permitted to deduct from his ordinary income the dividend he has to pay over to the purchaser, as well as commissions and interest.

The net effect of the transaction is to permit the offset of losses against ordinary income. The effect of this is similar to that with callable premium bonds mentioned previously in this article. The procedure may be more attractive in given instances than the use of premium bonds.

Where a corporation is involved, tax potentials are even more favorable. Callable premium bonds may be acquired, the premium amortized and deducted from ordinary income, the bond immediately sold, and a short-term gain taken.

The corporation then acquires shares with accumulated dividends and sells them immediately after they go exdividend. The short-term loss on such shares is offset against the short-term gain on premium bonds.

Meanwhile the dividend is received, subject to the 85% deduction for dividends received, which is available to corporations but not to individuals. The effect of such a transaction is to reduce the tax rate from 52% to approximately 7.8%, with appropriate adjustments for commissions and slight variations in market prices.

NONCOMMERCIAL ANNUITIES

An investor holding securities of highly appreciated value and with large dividend yields may find it very advantageous to sell such securities to a member of his family, a foundation or trust, not in exchange for cash but in exchange for an annuity calculated on commercial annuity rates. When the 1954 code was under consideration, it was proposed that such a transaction, if entered into after the enactment of the code, should result in an immediately realized, taxable capital gain.

This permits the reinvestment of the proceeds of the shares by the grantor of the annuity, without dilution of the principal sum by capital gains tax, and permits a very much larger annuity than otherwise would be available. As is well known, such annuity payments are received under highly favored tax conditions. This permits the enjoyment of unrealized capital gains and high dividend income at the most favored tax level.

FOREIGN TRUSTS

Capital gains enjoyed by investment companies' nonresident foreign trusts are not subject to capital gains tax. If advantage is taken of appropriate tax treaties, interest or dividends earned in the United States by such trusts are subject to very low withholding taxes or no taxes at all.

It is important that such a trust be set up as a nonresident trust and that the trust instrument provide for the accumulation of income for at least ten years. Otherwise, income or capital gains of the trust might be taxed in the United States anyway.

Also, the grantor of such a trust must not retain too many "strings" on the trust, or he will be taxed with the income and capital gains. It is important that the trust be in a Nation that enjoys political and economical stability and little or no income or capital gains taxes. Such locations are not easy to find but they are available.

If securities are donated to such a foreign trust and have a market value in excess of their cost, the donor is subjected not only to a possible gift tax but to a 27½% excise tax on the unrealized gain as well. However, these taxes do not apply if the trust is set up with cash and acquires its own securities, or if appreciated securities are sold at fair prices to the foreign trust, even if payment is made on a deferred basis. This avoids tax on subsequent capital gains and, under appropriate circumstances, subsequent income.

A combination of such trusts and a noncommercial annuity produces particularly dramatic capital formation results.

Though it is not legally essential for the foreign trust to make local investments, it is recommended that an appropriate amount of local investments be made in terms of the public relations implications of such procedures. This also intends to co-ordinate the procedure with the Government program, to provide tax incentives for foreign investments. Many similar advantages may be obtained through foreign investment companies, but expert legal advice is necessary in order to avoid the risks of the foreign personal holding company tax.

THE ETHICS OF TAX SAVINGS

Should the analyst have ethical compunctions or an incipient sense of guilt in connection with the various methods of tax economy mentioned here, the following considerations seem highly relevant:

1. The eminent jurist, Justice Learned Hand, as well as many other judges, has repeatedly stated that the taxpayer has every moral and legal right to reduce his tax by every means provided by the law.

2. The comparison of the tax load of the average financial analyst and his counterpart in the usual executive position in a manufacturing or commercial enterprise will show that the financial analyst is at a severe tax disadvantage and that usually he lacks the advantage of fringe benefits such as pensions, profit sharing, stock options, and juicy expense accounts. When compared to the tax rates paid by the manufacturing or commercial corporations, the disadvantage of the individual analyst is even more striking. This seems to create a particular case for an equalizing procedure.

3. Taking advantage of legitimate tax-favored capital formation procedures is doing no more than exercising one of the privileges that is a main point of distinction between a Nation predicated on individual enterprise and one with a collective economy.

4. The ultimate test in any long-range tax or capital formation program, in terms of either moral or legal effectiveness, is whether or not the program is tied in with the creation of effective human or economic resources, thus contributing to the over-all advancement of the community. It is for this reason that special tax favor is shown to pension trusts, profit-sharing trusts, joint capital trusts, insurance, and the like.

A MARKED STEP FORWARD

The Internal Revenue Code of 1954 represented a marked step forward in the articulation of an over-all program of creative incentive taxation. Such planning can and should be improved. Meanwhile, it is the privilege, in fact the duty, of individuals and organizations to take advantage of the capital formation tax incentive which their law provides.

* * *

Black Horse Inn on William Street catered to "public receptions" in the early part of the Nineteenth Century.

In 1777, the State of New York "held a Convention . . . and asked for an ordinance to protect and support the Bank of North America."—*Flagg*

The Bank of New York was chartered in 1791 with a capital of $1,000,000. "Alexander Hamilton's bank gave the Government a loan of $200,000."

Board of Underwriters established in 1820.

The Merchants Exchange meetings were held every Friday morning on Exchange Place.

At the end of the Eighteenth Century, shopping was done by means of auctions. Ladies attended such functions and bid for cotton, silk, damask, etc.

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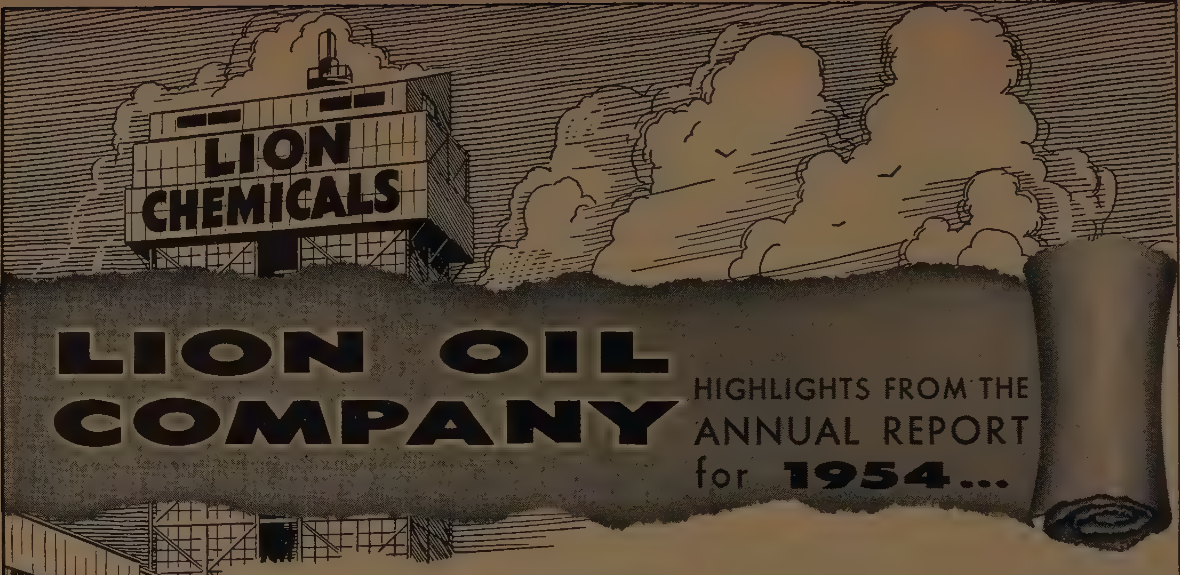

LION OIL COMPANY

HIGHLIGHTS FROM THE ANNUAL REPORT for 1954...

THE AMMONIUM NITRATE PELLETING TOWER AT THE NEW BARTON PLANT, LULING, LOUISIANA . . .

THE YEAR 1954 was one of the greatest years of accomplishment in the history of Lion Oil Company. Growth and expansion continued, with all divisions of the Company showing increased volumes of production and sales.

The year saw the completion of an extensive expansion of manufacturing facilities. The Barton Plant, the new chemical installation near New Orleans, was put into production in June, 1954, and brought Lion's investment in chemicals about equal to that in oil. The start up of this plant followed by six months the completion of a major refinery expansion program which included the construction of an additional catalytic cracking unit.

Although The Barton Plant operated at near capacity throughout the last half year, the full benefit of the installation was not felt in earnings. The movement to market of the agricultural chemicals manufactured there is seasonal and much of the production went into storage for sale during the spring growing season of 1955.

The new refining facilities, which operated throughout the year, permitted an increased efficiency in yields and a marked improvement in the octane ratings of the Company's gasolines.

Successful completions of oil and gas wells by Lion Oil Company in the year 1954 showed a gain of 48% over 1953. The year's outstanding development was in the Colorado portion of the Denver-Julesburg Basin where the Company completed 64 net producing wells during 1954 in four separate fields. Lion has substantial holdings in this relatively unexplored basin. New discoveries made by the Company during the year included the Battleship field in Jackson County, Colorado, and the Cottage Grove field in Bossier Parish, Louisiana.

Cash dividends paid during the year represented 55.8% of net earnings and totaled $6,181,794 or $2 per share. Dividends, which are remitted quarterly, have been paid continuously by the Company since 1936.

FINANCIAL SUMMARY

	1954	1953
Net Working Capital—Dec. 31	$ 23,787,585	$25,784,256
Current Ratio	2.98	3.11
Net Properties (Fixed Assets)	$109,071,543	$99,039,397
Total Net Worth—Dec. 31	$101,135,922	$96,246,302
Shares of Capital Stock Outstanding Dec. 31	3,090,912	3,090,890
Number of Stockholders	16,807	16,498
Total Dividends Paid	$ 6,181,794	$ 6,181,775

OPERATING SUMMARY

	1954	1953
Number of Producing Wells (Net)	937	873
Gross Crude Oil Production—Barrels	8,333,034	7,829,481
Crude Oil Run to Stills—Barrels	8,853,248	8,421,579
Total Refined Oil Sales—Gallons	376,151,644	363,954,581
Elemental Nitrogen (N) Production—Tons	225,605	172,809
Number of Employees—Dec. 31	2,992	2,732
Annual Payroll	$ 14,865,861	$13,547,482

CONDENSED EARNINGS STATEMENT (For Years Ended December 31)

	1954		1953	
	Amount	Per Share	Amount	Per Share
Sales and Operating Revenues	$98,584,798	$31.90	$89,959,405	$29.11
Operating Charges, Interest, Etc. (Net)	82,059,372	26.55	73,034,145	23.63
Net Income Before Provision for Taxes on Income	16,525,426	5.35	16,925,260	5.48
Estimated Federal and State Taxes on Income	5,454,000	1.77	6,237,000	2.02
Net Income	$11,071,426	$ 3.58	$10,688,260	$ 3.46

For 1954 Annual Report . . . WRITE: Public Relations Department, 810 Lion Oil Building, El Dorado, Arkansas

Effect of Accelerated Depreciation on Public Utility Companies

C. D. McDANIEL

THE FEDERAL INCOME-TAX LAWS are usually thought of as a means of producing revenue for the Federal Government. In addition, they have over the years been used as a means to accomplish certain social and economic ends. One example of this is section 124A of the Internal Revenue Code of 1939.

The stated purpose of section 124A was to encourage private industry to make capital expenditures that might otherwise not have been made, or at least not made until some future period. Under the provisions of this section, companies were entitled, for tax purposes, to write off the certified portion of the cost of emergency facilities over a five-year period, irrespective of the fact that the facilities might have a longer physical life. The cash that otherwise would have been required to pay income taxes in the five-year period was thus available to help finance the property.

Many companies have applied for and been granted certificates permitting them to use this provision of the tax law. Where the economic life of the property was equal to the five-year write-off period permitted for tax purposes, the book and tax treatment of this property should obviously be the same. If, however, the property had an economic life that extended beyond the five-year period, other courses should be followed.

Most, if not all, of the properties of public utility companies for which certificates have been obtained fall into the latter class. In the ordinary case of a public utility, the property in question presumably has the same service life as other comparable property that is not covered by certificates. If the certified property is to be used through an entire life cycle, the charge for that use (depreciation) should be made over the same period.

WOULD PROVIDE FOR DEPRECIATION

Under the conditions outlined here, the utility would provide for depreciation on its books in the same manner that it did for other property: that is, ratably over the service life of the property. The depreciation deduction for tax purposes, however, would be substantially larger during the five-year period, and during the remaining service life of the property correspondingly smaller than the depreciation provided on the books.

Because of the difference between the depreciation deduction for tax purposes and the depreciation provided on the books, the income tax to be paid would be smaller in the first five years and larger in the remaining years than a provision for income tax computed on the basis of the income statement.

The problems arising from accelerated depreciation center around the proper treatment of these two differences.

If we assume that the company would have taxable earnings in all periods and that the tax rates would remain the same, the aggregate amount of taxes to be paid over the service life of the property would be the same, whether the company used the provisions of section 124A or not. It is only the timing of the payment of the taxes that would be changed.

Since the aggregate amount of taxes to be paid would be the same, whether the company used the provisions of section 124A or not, there could be no "tax savings" in the application of this section, but merely a deferral in the time of payment. Accordingly, it should follow that, since there would be no tax savings, the net income should not be augmented during the five-year period nor penalized in the subsequent years.

In recognition of this condition, various regulatory commissions have issued orders prescribing the accounting to be followed by companies under their jurisdiction. These orders call for the companies to make provisions during the five-year period for the income taxes that have been deferred, and in the subsequent years to reverse these amounts to income as the higher taxes fall on the company.

While these orders have uniformly prescribed charges to income for deferred taxes during the five-year period, there has been a marked diversity among the regulatory commissions as to what should be credited.

Some commissions have correctly required the provisions for deferred taxes to be credited to a reserve for deferred taxes. Others have provided for these credits to be made to earned surplus, which, in turn, has been restricted as to the payment of dividends.

There seems to be little question but that the commissions have the authority to prescribe the accounting they deem appropriate for regulatory purposes, but that does not necessarily mean that it is correct accounting nor that the results thereof are a proper reporting to security holders.

ACCELERATED DEPRECIATION PROVISIONS

The accelerated depreciation provisions contained in the tax laws do not represent an allocation of cost of property over its useful life. They are merely a means of facilitating financing through the deferring of tax payments.

This change in timing of the payments results in making available to the company, for an extended period of time, an amount of cash equivalent to the reduction in the payments for the five-year period. The practical effect of all of this is that the Federal Government has loaned the company funds, on which no payment of interest is required.

This could have been accomplished by a direct loan from some Government agency, but it was not. Congress decided to accomplish this step within the framework of the income-tax law, rather than as a direct loan in the ordinary commercial manner. The companies have effectively borrowed funds which are to be repaid in the future, and the liability for the repayment should be recorded as a liability and not as a part of equity capital.

The liability resulting from deferring tax payments is, at the time of its creation, a long-term liability. With respect to any specific additions, this liability begins to mature serially in the year following the five-year write-off period, and extends to the end of the service life of the property on which the depreciation provision has been based.

If the company has taxable earnings in all the remaining years of the service life of the property, the aggregate amount of this liability will be the difference between the taxes that will have to be paid in future years and the amount that those taxes would have been if the company had not used up the depreciation deduction under section 124A.

EXACT AMOUNT DEPENDENT ON TAX RATES

The exact amount is dependent on the tax rates that will be in effect in those years. Since this is an unknown during the five-year write-off period, most companies have provided for the deferred tax at the current tax rate.

If the company encounters an extended period of losses during the remaining years of service life of the property, the payment of at least a portion of the deferred taxes applicable to that period is in effect forgiven. Thus the liability for the deferred taxes is contingent on earnings in the subsequent years. Accordingly, it is correct to reflect the provision for this liability as a reserve.

Financial statements may be analyzed for a number of purposes, such as to compare the results of operations in one period with those in previous periods, or with those of other companies; to rate securities; to advise on their purchase, sale, or retention. In such a comparison, an analyst makes use of ratios or the relationship of one or more items in the financial statements to other items. The ratios developed by analyst can be no more correct than the figures with which he works; and, if some of the ratios that he uses as measurements are not correct, his final conclusions may be wide of the mark.

The inclusion of a long-term liability for the payment of taxes as a part of earned surplus might easily lead to an erroneous answer concerning the capitalization ratios, amounts available for dividends (under certain types of restrictions), and so on, and might result in a different rating or recommendation than would have been given, had the analyst considered only the true earned surplus of the company. Furthermore, since financing is competitive, even in a regulated industry, an erroneous conclusion in a situation of this kind not only gives an unwarranted advantage to a company that has improperly accounted for a future tax liability but also penalizes those companies that have accounted correctly.

THE DESIRABLE SITUATION

The desirable situation would, of course, be one in which all the utility companies had accounted correctly for the liability for future tax payments. This, however, is not the fact. So, in order to be correct and also to have a sound basis for comparison with companies that have correctly accounted for this item, it is necessary, before computing ratios, to adjust the earned surplus of those companies that have incorrectly included this liability in that account.

One of the effects of the accelerated depreciation provisions of the tax laws has been the introduction of a new element in the financial statements of utility companies. It will become more important as time goes on. Analysts should give consideration to this item, but it should be recognized for what it is and not as an addition to equity capital.

Although some utility companies have been using accelerated depreciation and have credited the liability for future taxes to earned surplus, the amounts to date have been comparatively small in relation to the total capitalization of those companies. Because of the immateriality

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consecutive dividends

● A quarterly dividend of 45¢ a share has been declared on the common stock of this company, payable on April 1, 1955, to shareholders of record March 10, 1955.

● A quarterly dividend of $1.00 a share has also been declared on the preferred stock of the company. It too is payable on April 1, 1955, to shareholders of record March 10, 1955.

Abbott

E. H. Volwiler, President
February 24, 1955

ABBOTT LABORATORIES
Manufacturing Pharmaceutical Chemists
North Chicago, Illinois

YALE & TOWNE

DECLARES 268th DIVIDEND

50¢ PER SHARE

On Jan. 27, 1955, dividend No. 268 of fifty cents (50¢) per share was declared by the Board of Directors out of past earnings, payable on April 1, 1955, to stockholders of record at the close of business Mar. 17, 1955.

F. DUNNING
Executive Vice-President and Secretary

THE YALE & TOWNE MFG. CO.
Cash dividends paid in every year since 1899

GOODYEAR

DIVIDEND NOTICE

The Board of Directors today declared the following dividend:

50 cents per share on the Common Stock, payable June 15, 1955 to stockholders of record at the close of business May 16, 1955.

The Goodyear Tire & Rubber Co.
By Arden E. Firestone, *Secretary*
Akron, Ohio, March 28, 1955

THE GREATEST NAME IN RUBBER

of this item, independent public accountants have not taken an exception in their certificates to the inclusion of this liability in earned surplus.

The Revenue Code of 1954 retained the provision for accelerated depreciation of certified properties that was contained in the Revenue Code of 1939, and, in addition, made some changes in the methods by which depreciation allowances may be computed. These changes permit any taxpayer at his election to use either the double-rate declining-balance or sum-of-the-years'-digits method instead of the straight-line method to compute the depreciation allowance on properties acquired new or constructed after December 31, 1953.

Even though a utility company may elect to use one of the alternative methods to compute its depreciation allowance for tax purposes (and indications are that most of them will avail themselves of either one or a combination of these methods), it is likely that it will continue to follow the straight-line method on its books.

Either of the alternative methods, in comparison with the straight-line method, will result in substantially larger depreciation deductions for tax purposes in the early years and correspondingly smaller deductions in the later years of the service life of the property. Conversely, the use of either one of the alternative methods for tax purposes will result in deferring tax payments from the early to the later years of the life of the property, and thus will generate the same kind of differences in the accounts as would the use section 124A.

EXPANDING THEIR PROPERTIES

Utility companies are concurrently expanding their properties, and, even if this growth were to cease, a substantial amount of construction would be required, merely to replace property that had reached the end of its service life. Because of the increase in the price level, it is likely that, even if a utility company did not expand physically, the replacement of old property at present price levels would result in increased property balances. The retirements of old property will reduce the old depreciable base that will remain subject to straight-line depreciation for tax purposes, and the cost of all additions to depreciable property will be added to the base which may be depreciated by the alternative methods.

Because the average service life of utility property is considerably longer than five years, the alternative methods will not produce so much difference per dollar invested in property as the five-year write-off of certified properties. The alternative methods, however, may be used for all additions to depreciable property after December 31, 1953, and, since the deferral of taxes is cumulative, it will rapidly become a substantial amount on any company that has large amounts of property additions.

DEFERRED PERIODS WILL BE LONGER

Although the amounts of taxes that will be deferred in any one year under the alternative methods will not be so large as if the company were amortizing this property under five-year certificates, the periods in which taxes will be deferred will be longer. The principles involved are the same under both methods; that is, there is a deferment in the payment of taxes but no tax savings, and, accordingly, provision should be made in the current income account for the taxes that will ultimately be paid. Similarly, the liability for the taxes to be paid in some future period should be recorded as a liabiltiy, and not as part of the equity capital.

MAY EXIST FOR A LONG TIME

It appears that the differences between book and tax depreciation of utility companies resulting from the use of the alternative depreciation methods may exist for a long time. It is quite likely that, in the management of the financial affairs of these companies, the cash that is made available through the deferral of tax payments will have an effect on the future capital structures of these companies.

The case may be used to finance further property additions that would otherwise have been financed by the sale of additional securities, or it may be used to retire debt or preferred stock in advance of what would otherwise have been possible. Any of these possibilities would obviously change the existing capitalization ratios, and, as a result of these changes, the percentage of equity capital might be increased at some time in the future. The deferral of tax payments provides funds; however, the receipt of those funds concurrently results in a liability for taxes payable in future years, and for this reason such funds cannot be considered to be equity capital.

They Make the Facts Available . . .

. . . The companies listed below are rendering a service to American industry by means of practical financial public relations. Their objective is better understanding between management and investors . . . security houses . . . the financial press.

As financial public relations counsel for these forward-looking companies, we can supply you with up-to-date information about their activities, progress, and prospects.

American Metal Products Company
Colonial Sand & Stone Co., Inc.
Detroit Steel Corporation
Drewrys Limited U.S.A., Inc.
Gardner-Denver Company
Mueller Brass Company
Mullins Manufacturing Corp.
Panellit, Inc.
Robertshaw-Fulton Controls Co.
The Thew Shovel Company

Financial Public Relations
Gartley & Associates, inc.
68 William St., New York 5

BRIDGEPORT BRASS in 1954:

PRODUCED A RECORD-SIZED ALUMIMUM DIE FORGING The largest aluminum alloy die forging ever made for the airplane industry was produced at our new government-leased aluminum forging and extrusion plant at Adrian, Michigan, in its first 9 months of operation.

COMPLETED AN ENTIRELY MODERN TUBE MILL The increased profit possibilities of the new plant have already been demonstrated, and real benefits should start to be fully realized this year.

LAUNCHED THE NEW LINE OF BRIDGEPORT COPPERWARE COOKING UTENSILS These beautiful utensils—"The finest you can own or give"—were widely and immediately acclaimed by buyers. A new plant for their production, now being constructed, will be ready for operation the second half of 1955.

EARNED THE SECOND HIGHEST PROFITS AFTER TAXES IN ITS HISTORY Profits might have been the highest in Bridgeport Brass history were it not for the large starting-up expenses of the Adrian aluminum plant, the new tube mill and the Bridgeport Copperware line.

INCREASED DIVIDENDS FOR THE 5th CONSECUTIVE YEAR On an increased number of shares, dividends of 50 cents per common share were paid for each of the first three quarters, 62½ cents per common share for the fourth quarter.

FACTS AT A GLANCE

	1954	1953	1952
Sales	$105,987,000	$142,659,000	$127,517,000
Profit before federal taxes on income	10,155,000	19,601,000	13,074,000
Federal income taxes (including excess profits taxes)	5,050,000	14,275,000	9,050,000
Net income after taxes	$ 5,105,000	$ 5,326,000	$ 4,024,000
Distributed to shareholders as dividends	$ 2,569,000	$ 2,032,000	$ 1,618,000
Retained in the business	2,536,000	3,294,000	2,406,000
Net income	$ 5,105,000	$ 5,326,000	$ 4,024,000
Earnings per common share*	$ 4.21	$ 5.47	$ 4.23
Dividends per common share	$ 2.125	$ 2.00	$ 1.70
Total number of shareholders—common stock	9,750	9,593	8,752
Book value per common share	$31.31	$29.32	$28.26

*Based in 1954 on shares outstanding at year-end, 1,211,932, in 1953 on average number of shares outstanding during year, 973,220 and in 1952 on number of shares outstanding, at year-end, 948,555.

World's largest aluminum die forging

BRASS
Bridgeport
CO.

BRIDGEPORT BRASS COMPANY

BRIDGEPORT, CONNECTICUT

Programming Investment Portfolio Construction*

J. FRED WESTON and WILLIAM BERANEK

SCIENTIFIC MANAGEMENT has had a long history of application to business practices. This approach is associated with Frederick W. Taylor, whose major work was performed over 40 years ago, but whose influence finds current expression in business practices. Since its early application, the scientific approach to management has been reintroduced in many forms under various names.

The necessity of speeding operations and output, of conserving scarce man power and materials, during World War II gave renewed impetus to this tradition in American management methods. New methods currently enjoy great prestige and offer much promise for significant contributions to achievements. Although presented under several names, these activities are essentially of like nature. They are variously known as operations research, activity analysis, and operations analysis. Specific methods of operations research increasingly used are linear and nonlinear.

Thus far the techniques have been most widely used in military and production scheduling problems. Only to a limited extent have these been applied to financial operations of the firm. We hope to increase recognition and understanding of the basic ideas of the nonlinear programming procedures which Harry Markowitz of the Rand Corporation has expounded, and to appraise their potential applicability to other areas in the field of finance.

LACK OF A THEORY OF PORTFOLIO SELECTION

Markowitz begins by charging an inconsistency between the principles of portfolio selection and the traditional descriptions of the process by which securities are valued.

The value of a security is said to be determined by capitalizing its anticipated yield. Investors take risk or uncertainty into account by applying a reduction factor to the anticipated yield, or by increasing the capitalization factor.

The higher the capitalization rate, the lower is the resulting capitalized value. Both the yields and the capitalization rates are expressed as certainty equivalents; that is, they are expressed in terms of what the investor expects to realize on the average. Individual securities are selected by comparing "intrinsic" values, as determined by comparing capitalized expected yields, with actual market values. The prescription is to buy securities whose market values are considerably lower than their intrinsic values.

This procedure implies that no one would ever build a diversified portfolio. If the investor does (or should) maximize discounted return, his portfolio will (or should) consist of one security—that which promises the greatest return (yield plus capital gains).

But portfolios are usually diversified. This demonstrates that investors do not base their decisions only on an average expected performance, but in addition consider the possibility of variations in returns.

However, the basis on which investors diversify their portfolios has not been adequately formulated. Markowitz suggests a procedure for portfolio selection that takes into account expected returns and variations from average results as well.

INTRODUCTORY TO THE THEORY

The first stage in security selection is the formulation of beliefs about expected yields and possible variations from those yields. Although no concensus on what constitutes the best methods of estimating expected means and variances for individual securities exists, the substantial amount of securities bought and sold every day provides abundant evidence that judgments are continuously formed.

Utilizing these judgments, which are essential to rational participation in security transactions, the method here described begins at a second stage of analysis. It accepts the premise that investors have certain expectations concerning future security yields and prices, and emphasizes the fact that these subjective expectations are held with some degree of probability. The procedure for portfolio diversification utilizes the beliefs about expected prices and their variances.

The estimation of average or expected returns is a complex process of decision making. However, a simplified description of a method of calculation may clarify the ideas of "mean" and "variance."

We begin by assuming that the investor holds the following beliefs about the returns from a security over a one-year investment horizon, which seems to him a logical period for making such judgments. For a given security S, he expects a yield plus capital gain of 8% with his best estimate a 0.6 probability of this return for 1955; that is, he believes that he has 6 chances in 10 of realizing an 8% return from S during the year 1955.

Similarly, we can set up Table 1 representing his expectations about the probabilities of other returns. The first two columns present data assumed as facts.

The table indicates how the expected or actuarial return $\overline{R}$ is calculated. The extent of variation of these returns from the expected or mean return is shown by the calculation of σ^2, the variance, and σ, the standard deviation of the returns. The mean return will be referred to as μ in the subsequent

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*Assistance provided by the bureau of business and economic research of the University of California, Los Angeles, is gratefully acknowledged. We are indebted to Joseph String Jr., who performed the calculations for the illustrative examples.

Table 1. Expected Returns from S for the Years 1955 - 1958

(1) Probability	(2) Expected Return, R	(3) (1) X (2)	(4) $\bar{R}$ - R	(5) $(\bar{R} - R)^2$	(6) (1) X (5)
0.6	8%	4.8%	- 1%	1%	0.6%
0.2	14	2.8	- 7	49	9.8
0.1	2	0.2	5	25	2.5
0.1	- 8	-0.8	15	225	22.5
		$\bar{R}$ = 7.0%			σ^2 = 35.4%
					σ = 5.95%

discussion. With the concepts of mean and variance, we can proceed to the analysis.

Since the investor realizes that the gain from the security is uncertain, he must consider not only his expectations of earning a certain amount but also the possible variations. To illustrate: Suppose that over the next year an investor expects a yield of 5% from stock of the General Electric Company, or, after taking the capital gain into account, a return of 7%. But, since the dividends and market price of General Electric stock are subject to fluctuations, he recognizes that the return, with capital gains and losses taken into account, might be a loss of as much as 10% or a gain of 15%.

In addition, he considers other securities: U. S. Steel, AT&T, Standard Oil of New Jersey, and so on. He has a certain amount of money to invest. Given certain beliefs about means and variances of gains from these securities, how shall he apportion his funds among them?

In apportioning his funds, the investor seeks to maximize the mean return and minimize the variance of return. This objective involves an inherent conflict, however, for the investor must incur greater risk in order to increase his expected return.

In other words, he must accept an increased variance of returns. He can reduce the variance (or risk or uncertainty) only at the expense of a reduction in the expected return. He can increase the expected return only at the cost of increasing the variance.

The best the investor can do in portfolio selection, therefore, is to minimize the variance for a given expected return, or to maximize the expected return for a given variance. He may decide on the former, and fix the minimum expected return that makes it worth his while to engage in investment activities. On the basis of this return, he seeks to minimize the risk associated with the venture.

Alternatively, the investor may decide that he will bear only a given minimum amount of risk. He will not go beyond this fixed limit, but he wants to make his expected returns as high as possible. The new developments in portfolio selection include procedures for realizing either of the two objectives. Statistical formulas are used, and the results are clearly visualized through geometrical interpretation.

THE BASIC EQUATIONS

We want to explain the method. Since Markowitz's original paper presents a general treatment, this exposition will be limited to a three-security case. Specific numerical amounts will be used in order to give the method concreteness at every stage. We begin therefore with three securities, with assumed expected returns and variances as presented in Table 2.

The basic equations are:

$$X_1 + X_2 + X_3 = 1 \qquad (1)$$

where X_1 = proportion of total investment funds devoted to security 1

X_2 = proportion of total investment funds devoted to security 2

X_3 = proportion of total investment funds devoted to security 3

1 = total funds, for example, $10,000

$$E = X_1\mu_1 + X_2\mu_2 + X_3\mu_3 \qquad (2)$$

where E = the expected returns from the three securities, i.e., the total gain

The sense of this equation is readily seen. The total expected yield is the expected yield from security 1 multiplied by the proportion of funds invested in security 1, plus the yield on security 2 multiplied by the proportion of funds invested in security 2, and so on. If the assumed values of the μ's are substituted, the equation reads:

$$E = 2X_1 + 1.6X_2 + 3X_3 \qquad (2')$$

Equation 3 is variance. It reads as follows:

$$V = X_1^2\sigma_1^2 + 2X_1X_2\sigma_{12} + 2X_1X_3\sigma_{13} + X_2^2\sigma_2^2 + 2X_2X_3\sigma_{23} + X_3^2\sigma_3^2 \qquad (3)$$

where V = variance

σ_{12} = covariance of returns from securities 1 and 2

σ_{13} = covariance of returns from securities 1 and 3

σ_{23} = covariance of returns from securities 2 and 3

Table 2. Beliefs about Returns and Variances

Security	Mean Returns	Variance of Returns	Correlation Coefficients
1	$\mu_1 = 2.0$	$\sigma_1^2 = 1$	$r_{12} = 0.088$
2	$\mu_2 = 1.6$	$\sigma_2^2 = 1$	$r_{23} = 0$
3	$\mu_3 = 3.0$	$\sigma_3^2 = 1$	$r_{13} = 0$

μ = mean return

σ^2 = variance of returns

r = correlation between returns from securities

This equation seems very complicated. It frequently blocks those who feel that it defies understanding. In reality, after the equation has been developed and proved, it is nothing more than a cookbook formula for calculating variance from a portfolio of three securities with a known mean and variance of the individual returns for the individual securities.

THE VARIANCE FORMULA

Cookbook directions for the preparation of a casserole dish, for example, may seem equally incomprehensible and inexplicable if one seeks to set out the principles of chemistry implicit in them. But, if the instructions are followed and the requisite amounts of meat, eggplant, condiments, vegetables, and the like are put together, the resulting dish is satisfying. Similarly, the variance formula, even if its nature is not completely understood, may be used with the assurance that it is correct, that it will produce the desired results, and that one may proceed to use it.

Equation 3 includes covariances, whose numerical values may be calculated from the following relationships:

$$\sigma_{12} = r_{12}\sigma_1\sigma_2$$
$$\sigma_{23} = r_{23}\sigma_2\sigma_3$$
$$\sigma_{13} = r_{13}\sigma_1\sigma_3$$

Substituting these values in equation 3, we have

$$V = X_1{}^2 + 0.176X_1X_2 + X_2{}^2 + X_3{}^2 \qquad (3')$$

Since the presence of three unknowns makes calculation cumbersome, we eliminate one unknown by expressing X_3 in terms of X_1 and X_2.

$$X_3 = 1 - X_1 - X_2 \qquad (1')$$

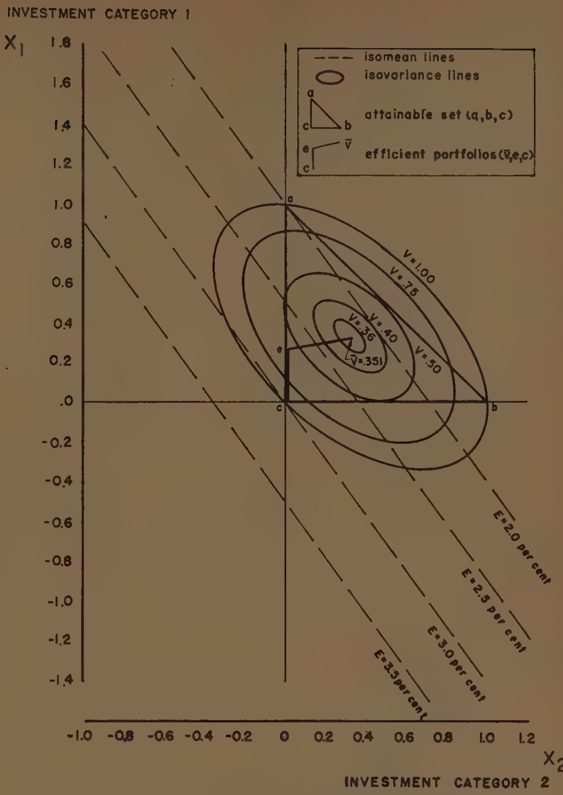
By substituting $1 - X_1 - X_2$ for X_3 in equations 2′ and 3′, we derive equations 2″ and 3″.

$$E = 2X_1 + 1.6X_2 + 3X_3$$
$$E = 2X_1 + 1.6X_2 + 3(1 - X_1 - X_2) \qquad (2'')$$
$$E = 3 - X_1 - 1.4X_2$$
$$V = X_1{}^2 + 0.176X_1X_2 + X_2{}^2 + X_3{}^2$$
$$V = X_1{}^2 + 0.176X_1X_2 + X_2{}^2 + 1 - 2X_1 - 2X_2 + X_1{}^2 + 2X_1X_2 + X_2{}^2 \qquad (3'')$$
$$V = 1 - 2X_1 + 2X_1{}^2 + 2.176X_1X_2 - 2X_2 + 2X_2{}^2$$

GEOMETRICAL INTERPRETATION OF E LINES

We may now use equations 2″ and 3″ to select securities for an optimal portfolio. At this point it becomes useful to express our procedures geometrically.

In the accompanying figure, we mark off the co-ordinates of the quadrants. In quadrant I, we draw a triangle and label it *a*, *b*, and *c*, starting at the apex and going clockwise. Points *a* and *b* represent unit scalers or, more simply, the placing of the entire portfolio fund in one security or the other.



Geometrical Illustration of Portfolio Programming

Thus the vertical axis measures the amount of the fund placed in security 1 and is labeled X_1; the horizontal axis indicated the proportion of the fund placed in security 2 and is labeled X_2. Knowing the amount of the fund placed in security 1 and security 2, we can determine the amount placed in security 3 from equation 1, which states that the total fund is placed in securities 1, 2, and 3.

To illustrate, assume that the total fund is $10,000 and that we have a point with co-ordinates (0.1, 0.3). The coordinates (0.1, 0.3) indicate that one tenth of the fund, or $1,000, is placed in security 2; three tenths of the fund, or $3,000, is placed in security 1; and the remainder of the fund, or $6,000, is placed in security 3.

The area within the triangle has a special meaning. It is the *attainable set,* defined as those portfolio combinations that are possible. We cannot be outside the triangle and have an attainable portfolio. For example, if we were at a point with co-ordinates (0.4, 0.8), we would have $4,000 in security 2 and $8,000 in security 1; this exceeds the total $10,000 portfolio fund.

This being true, where shall the investor operate within the attainable set? What combinations of the three securities shall he utilize under the attainable conditions?

We may begin by drawing some *E* lines, or lines of given expected returns for given proportions of securities 1, 2, and 3 in the portfolio. We can do this by taking equation 2″ and specifying a desired value for E.

Suppose that we wish to earn a return of 2.5%. Then we have an equation that reads $2.5 = 3 - X_1 - 1.4X_2$. We can insert values of X_2 in this linear equation to find the corresponding values of X_1. This is done in Figure 1 for $E = 2.0\%$, $E = 3.0\%$, $E = 3.5\%$.

When the data are plotted in the figure, we have four parallel E lines. Given a practical interpretation, these E lines represent the various combinations of securities that will yield a given desired return.

What establishes the position of these lines? It is the values (assumed in this illustration) of the expected returns from securities 1, 2, and 3. It is the μ values from Table 2. To illustrate, take the line $E = 2.0\%$.

To determine how to secure this return, take the point where this E line cuts the X_2 axis, which is 0.7. This represents a portfolio of $7,000 in security 2, nothing in security 1, and $3,000 in security 3.

The same yield of 2.0% could be obtained by considering the portfolio represented by point *a*, which is $10,000 in security 1, nothing in security 2, nothing in security 3. (Therefore the μ for security 1 must be 2.0%.)

Or take the point with the following co-ordinates on the $E = 2.0\%$ line: (0.2, 0.7). This implies $7,000 in security 1, $2,000 in security 2, and $1,000 in security 3 to give a yield of 2.0%. For example, 0.7 times the μ of 2 for security 1 equals 1.4; 0.2 times 1.6, the μ of security 2, equals 0.32; 0.1 times 3, the μ of security 3, is 0.3. The sum of these is 2.02, which is, after rounding, equivalent to 2.0%.

VARIANCE

Our discussion of variance will begin by developing the point for which variance is the smallest. There are well-known, mathematical procedures for determining this. We begin with equation 3″.

$$V = 2X_1{}^2 + 2X_2{}^2 + 2.176X_1X_2 - 2X_1 - 2X_2 + 1$$

First we take the partial derivative with respect to X_1 and then the partial derivative with respect to X_2. We set each of these equal to 0.

$$\frac{\partial V}{\partial X_1} = 4X_1 + 2.176X_2 - 2 = 0 \qquad (4.1)$$

$$\frac{\partial V}{\partial X_2} = 4X_2 + 2.176X_1 - 2 = 0 \qquad (4.2)$$

Equations 4.1 and 4.2 are two linear equations that can be solved simultaneously. We get a value of 0.324 for both X_1 and X_2. Inserting the values of X_1 and X_2 in equation 3″, we find that the minimum value of V is 0.35.

This point of minimum variance is plotted in the figure, with the co-ordinates of $X_1 = 0.324$, $X_2 = 0.324$. The value of V so plotted has no reference to the co-ordinate values as placed in the diagram. This is simply a third-dimensional quantity which is not represented directly on the two-dimensional diagram. In the case chosen, this minimum value of V does fall within the attainable set, as can readily be seen from the values of X_1 and X_2.

We stated earlier that an investor can either maximize E for a given V or minimize V for a given E. It is of interest, therefore, to observe what combinations of securities 1, 2, and 3 are associated with different values of variance. We calculate values of the variance, using the equation 3″.

$$V = 2X_1{}^2 + 2.176X_1X_2 + 2X_2{}^2 - 2X_1 - 2X_2 + 1 \qquad (3'')$$

We can solve for X_1 using the quadratic formula:

$$X_1 = \frac{-2.176X_2 + 2 \mp}{4} \qquad (3.1)$$

$$\frac{\sqrt{(2.176X_2 - 2)^2 - 8(2X_2^2 - 2X_1 + 1 - V)}}{4}$$

If we assume values of V and if we assume values of X_2, we will have two-valued solutions of X_1. We might begin, for example, with a value of $V = 10$. When the values of X_1 and X_2 for an associated value of V are plotted, we get an ellipse, since the form of equation 3″ is that of an ellipse. For values of V close to 0.351, the minimum value, we get small ellipses. When the value of $V = 0.36$ is plotted, it is seen on the figure to be a very small ellipse. As the value of V increases, the ellipses grow larger.

PRACTICAL APPLICATIONS

With the aid of the E lines and the V ellipses, we can draw some practical conclusions. The points of tangency between a V ellipse and an E line are of significance.

Begin with the 2.0% E line, for example. We want to know the minimum variance associated with that E line. The minimum variance is an ellipse tangent to the E line from below. We thus get the minimum variance associated with a desired E line. This is called an *efficient portfolio point.* At this point we have a minimum variance for $E = 2.00\%$.

It will be noted that, as we move to the right in the figure, the E lines represent smaller returns, but the V ellipses represent greater risks. If we move to the left, the E values are larger, but the V values also become larger after we pass the minimum V point. We increase E by moving to the left because we have assumed security 3 to have the greatest prospective yield. Our portfolio includes more of security 3 as we move to the left. Thus by moving to the left we have less of security 1, and less of security 2, but more of security 3, and hence a greater E.

Starting from the point of minimum variance, we can draw an *efficient set.* The efficient set means simply a set of efficient points. This efficient set of points will consist of points of tangency, between increasing E lines and increasing variances. It will be a straight line. (This follows from the mathematical properties of the parallel E lines and the concentric ellipses with overlapping major axes, not necessarily parallel to the E lines.)

We move along this line in the attainable set until we get to the X_1 axis. We follow the straight line from V to the X_1 axis and then move down the X_1 axis to point c. This solid line represents the efficient set of portfolios. The efficient set defines efficient portfolios.

We can show the significance of this by an illustration. We might take the point (0.2, 0.3), which lies on the efficient set straight line. This represents $3,000 in security 1, $2,000 in security 2, and $5,000 in security 3.

It will be seen that this intersects an E line somewhat above 2.5%. It intersects a variance line of magnitude about 0.4.

By contrast, take another point on this straight line, (0.02, 0.26). This signifies $2,600 in security 1, $200 in security 2, $7,200 in security 3. This is on an E line of approximately 2.85%. It is on a V line of magnitude about 0.6. Although the second point secures an increased E, it does so at the expense of a greater V. The efficient set of portfolios therefore represents points of best combinations of securities to secure desirable E's and associated V's.

But the crucial question is: Which of these points should be settled on by the investor? Which is the optimum portfolio? To this question, the E–V hypothesis provides no answer, nor indeed could any other hypothesis.

The choice of a specific portfolio on the efficient set line depends on the "utility" preferences of the investor. The investor who wants a greater yield may obtain it by bearing more risk; he will tend to move toward the X_1 axis in selecting his portfolio.

The combination within the efficient set that will secure the maximum E and the maximum V in the attainable set will be the combination at the origin of the X_1X_2 line where the entire portfolio is placed in security 3; the yield is 3.00%, and the V is 1.00. If, on the other hand, his portfolio needs require him to minimize V, the investor will operate at the point of minimum V with an E of about 2.25%, with $3,240 in security 1, $3,240 in security 2, and $3,520 in security 3. In other words, this combination will secure the maximum E for a minimum V.

CONCLUSIONS

The E–V hypothesis makes three contributions to portfolio construction. First, it formulates and works out a solution to the mathematical problems of programming investment portfolio selection. It provides a basis for selecting efficient combinations of investments.

Second, by giving precision to some relevant variables in portfolio selection, Markowitz clarifies the economic nature of the portfolio construction problem. The E–V hypothesis and the equations in which it is expressed establish a generalization not hitherto recognized: Diversification reduces risk so long as the correlation between returns from two or more investments is less than plus one.

Third, a procedure for efficient computation required for selecting the portfolio is provided. Operations research has been applied to an increasing number of management problems.

In providing a quantified basis, on which decisions may be made, operations analysis has encountered difficult computing tasks. Problems that initially appeared intractable have become relatively manageable at relatively low cost by efficient computing procedures.

In portfolio selection, the E–V hypothesis and the equations formulated provide efficient computing procedures. They formulate the problems so that modern electronic computing machines may handle them relatively inexpensively for a portfolio of 20 up to hundreds of categories.

Doubtless the E–V hypothesis will seem strange and impractical to many investment executives. But programming portfolio construction simply applies the techniques of operations research, which have already secured wide acceptance in production and marketing, to an area of finance. It is useful therefore to consider some likely misconceptions about programming investment portfolio selection.

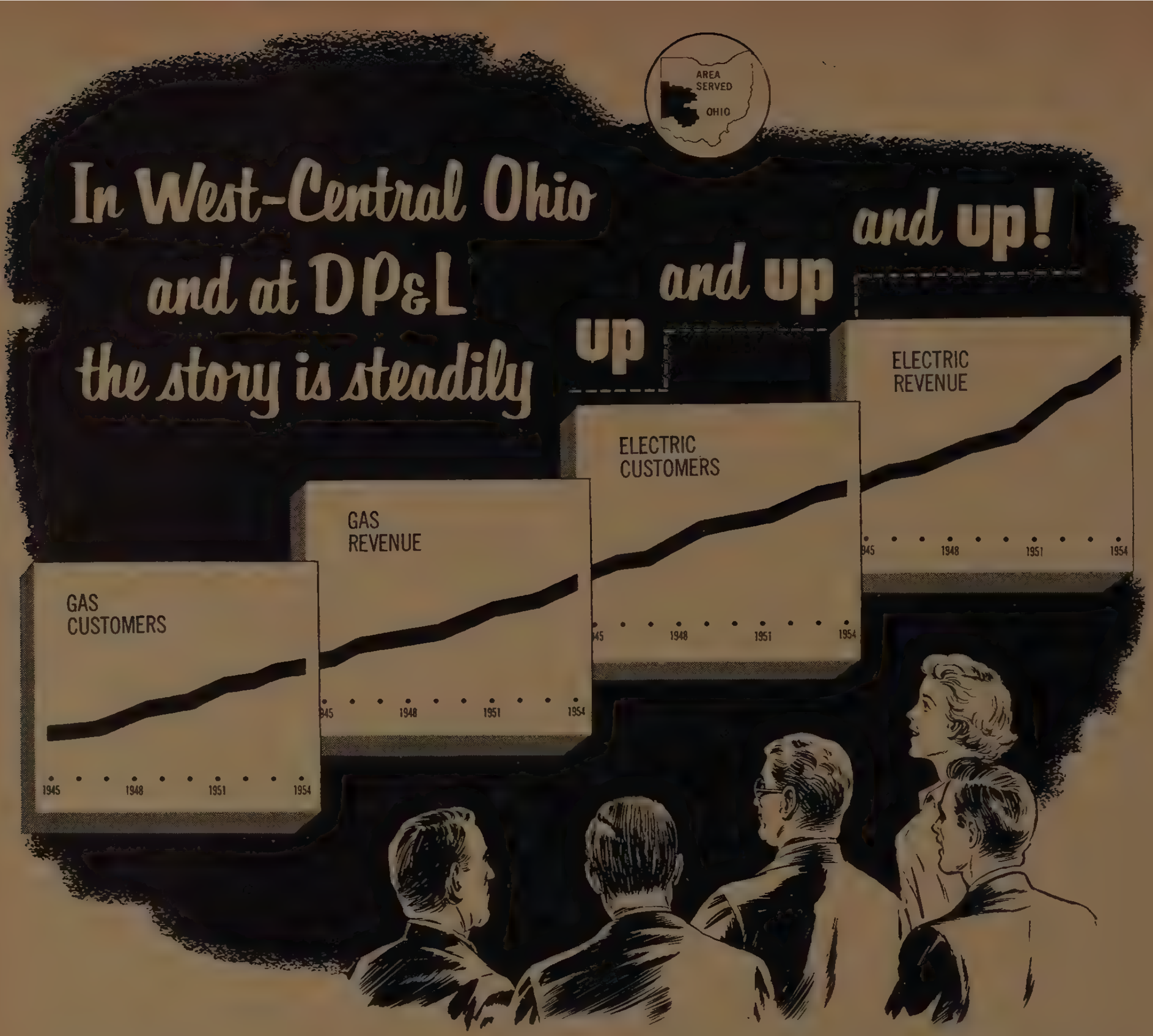
Many may think that a high level of technical and mathematical skill is required to employ portfolio programming. On the contrary, one of the contributions of the Markowitz formulation is that it has solved the complex mathematical problems, so that portfolio construction by the use of the equations and computing procedures developed makes it possible to utilize the technique with only a general understanding of the nature of the concepts involved (which this article seeks to provide).

Others are convinced of the great value of security and investment analysis. They believe that successful investment performance will always require generous applications of judgment. Consequently, they look with suspicion on the use of formulas and machines to make investment portfolio selections.

But portfolio programming does not diminish the need for research, analysis, and judgment. Indeed, it emphasizes further need for them.

Since portfolio programming begins at the stage where beliefs about expected returns and risks of investment categories have already been established, it is heavily dependent on the effectiveness of procedures by which these beliefs are formulated. By focusing scientific methods on portfolio selection, it emphasizes the need for systematic methods of developing estimates of returns and risks, (the μ's and σ's in the formulas).

Each area of business management seeks to utilize the latest developments in scientific methods and procedures to improve the contributions that may be made to effective enterprise operations. Portfolio programming affords a challenge and an opportunity for the progress of the science of finance, and for the accuracy of security forecasting and analysis.



The 1954 annual report of The Dayton Power and Light Company once again records new highs in every phase of the company's operation. West-Central area of Ohio has completed another year of record-breaking new home construction. In addition, the restrictions on the use of natural gas for space heating were lifted. And DP&L put on some of its most successful promotion efforts.

DP&L serves an area where business is on its toes . . . well-paid employees are buying new homes, and the individual use of our services is well above the national average.

This company has been in the fortunate position to take advantage of these opportunities. We are confident that in 1955 this prosperous and progressive area will continue to increase the demand for our services.

We've condensed our 1954 annual report into a "capsule" shown in the chart on the right. We would like to send you a copy of the full report. Just write—

THE DAYTON POWER AND LIGHT COMPANY
BALANCE SHEET

	December 31 1954	1953*
ASSETS		
Property and plant	$193,188,000	$184,096,000
Current assets	22,739,000	14,449,000
Other assets	570,000	1,278,000
	$216,497,000	$199,823,000
LIABILITIES		
Capitalization	$166,397,000	$149,232,000
Current liabilities	15,161,000	18,845,000
Reserves	34,939,000	31,746,000
	$216,497,000	$199,823,000

RESULTS OF OPERATIONS

	1954	1953*
REVENUE	$ 61,547,000	$ 57,501,000
EXPENSES	50,915,000	47,523,000
Gross income	$ 10,632,000	$ 9,978,000
INCOME DEDUCTIONS	2,193,000	1,828,000
	$ 8,439,000	$ 8,150,000
PREFERRED DIVIDENDS	949,000	949,000
Earnings on common stock	$ 7,490,000	$ 7,201,000
Number of common shares outstanding at December 31	2,600,059	2,585,728
Earnings per common share outstanding	$2.88	2.78*

**Restated to include settlement of purchased gas rate increases and federal income taxes*

THE DAYTON POWER AND LIGHT COMPANY

25 North Main Street • Dayton 1, Ohio

Impact of the 1954 Code on the Investor

BENJAMIN HARROW

THE INTERNAL REVENUE CODE of 1954 has been on the statute books for almost six months, but the full impact of its provisions will be felt by the millions of taxpayers who will be filing their income tax returns during the current two months. For calendar-year taxpayers, two returns will be due by April 15: One is the final return for 1954, and the other is the declaration of estimated tax for 1955.

Although the thousands of changes in the income tax law affect all taxpayers, many of these changes are of special concern to investors. In this analysis of the code, only those provisions will be discussed that affect investors.

ESTIMATED TAX FOR 1955

A word first on the estimated tax for 1955. To avoid penalties for underestimating the current year's tax, many taxpayers have been obliged to overpay their taxes.

To these taxpayers, it is no consolation to know that the Treasury Department will issue a refund with interest at 6% soon after the final return is filed. The actual payments during the year may have been made out of capital.

For example, partners in stock brokerage firms are quite dissatisfied with the present provisions relating to the declaration of estimated tax, as they were with the previous provisions. In numerous instances the partners do not know what their profits will be until the last day of the year, and may not withdraw profits during the year until the last day.

A correct amended estimate filed by January 15 after the close of the year may still subject the taxpayer to a penalty for underestimating the three previous installments. The provisions with respect to the estimated tax for 1955 should therefore be understood by taxpayers.

If a taxpayer has income in excess of $100 from sources other than wages, a declaration is required if the total income including wages on which taxes have already been withheld is expected to exceed $600, multiplied by the number of exemptions plus $400. The first declaration is made on April 15, and this may be amended, up or down, on June 15, September 15, and the following January 15.

A husband and wife may file a joint declaration, but that does not bind them to file a joint final return. They may file separate returns, and the payments made on the estimated tax may be divided between husband and wife in any proportion they choose.

The penalty for any underpayment of an estimated tax is 6% per annum, computed on the amount of each underpayment and for the duration of the underpayment. Some underpayment is not penalized. Only the excess of the amount of the installment that should have been paid if the actual payment had been 70% of the tax shown on the final return over the amount of the installment actually paid on the due date.

For example, suppose a taxpayer showed a final tax liability of $20,000 on his 1955 return filed April 15, 1956. He paid a total of $10,000 in equal installments. Seventy per cent of $20,000 is $14,000, so that the taxpayer underestimated his current taxes by $4,000. Each quarterly installment was underestimated by $1,000. The penalty would be computed as follows:

1st installment	6% × $1,000 for 366 days	(4-16-55 to 4-15-56)
2d installment	6% × $1,000 for 305 days	(6-16-55 to 4-15-56)
3d installment	6% × $1,000 for 213 days	(9-16-55 to 4-15-56)
4th installment	6% × $1,000 for 91 days	(1-16-56 to 4-15-56)

This penalty may be avoided under the following conditions: If the particular installment is at least 90% of the tax computed at current rates on the actual taxable income for the months in the taxable year preceding the month of the installment due date.

To illustrate, suppose a taxpayer has taxable income for the first three months of 1955 of $4,500, and that his tax would be $355 if that was the income for the full year. Ninety per cent of the tax would be $319.50. To avoid the penalty for an underestimation, the April 15 payment should be at least $319.50. If taxable income for the first five months amounted to $7,500 and if the tax was $877, 90% of that amount would be $789.30. The June 15 payment would have to be enough to bring the total of the first two payments up to that amount to avoid the penalty.

If the taxable income for the first eight months amounted to $12,000, and if the tax was $1,836, 90% of that amount would be $1,652.40. The September 15 payment would have to be enough to bring the total of the first three payments up to that amount to avoid the penalty.

If the taxable income for 12 months amounted to $19,400, and the tax was $3,920, the January 15 payment would have to be enough to bring the total payments up to $3,528. The balance of $392 would be paid by April 15, 1956, when the final return is due. The penalty may also be avoided if the taxes are computed on the basis of the preceding year's income but at the current year's rates and exemptions, or if the same tax is paid for the current year as was paid for the preceding year.

ANOTHER METHOD OF AVOIDING PENALTY

Still another method of avoiding the penalty is provided in the law. The payment at each installment date must be at least 70% of the tax for the year on the basis of annualizing the income for the months in the taxable year preceding the month of the installment due date. Annualizing means multiplying the taxable income by 12 and dividing by the number of months preceding that of the installment, and then deducting the personal exemptions.

To illustrate, suppose a taxpayer had taxable income of $4,600 for the first three months. On an annual basis, the income would be $18,400 ($4,600 × 12 ÷ 3). From this the personal exemption is deducted ($18,400 — 600). The tax on $17,800 is $6,100. Seventy per cent of the tax on the annualized income is $4,270, and the April 15 installment would have to be at least $1,067.50 to avoid the 6% penalty.

DEDUCTIONS FOR DEPENDENTS

Under the new code, the exemption for dependents is treated as an allowable deduction from gross income, but the right to this deduction has been liberalized. No longer is there a limitation of $600 of gross income for a taxpayer to claim a deduction for such dependent.

Under the new code, if the dependent is a child under the age of 19 or even if he is over 19 but attends high school or college, the dependent may now earn more than $600. The parent is still required to provide more than half the cost of supporting the child. It should be noted that a return would have to be filed for the child and on such a return a deduction of $600 is allowed as a personal exemption.

With respect to other classes of dependents, such as a brother or sister, or a parent, the $600 gross income limitation still applies. In determining the gross income for such a dependent, nontaxable income such as tax-free interest or social security benefits is disregarded. However, it must be taken into account in determining whether the taxpayer contributed more than one half of the cost of supporting the dependent if such income was used by the dependent for his support.

If two or more persons contribute more than one half the support of a dependent, but neither one alone does so, it is now possible for one of them to take the dependency deduction. Two conditions must be satisfied: He must furnish more than 10% of the support and the other persons must file a written declaration that they will not claim the individual as a dependent.

HEAD OF A HOUSEHOLD STATUS

The new code brought some changes in the determination of head of household status. Such a taxpayer must maintain a home for a person who qualifies as a dependent. If the dependent is an unmarried child, it is immaterial how much gross income the child has. If the dependent is not a child, the $600 gross income test applies. A more important provision permits dependent parents of a taxpayer to live in their own home without affecting the status of a taxpayer as head of a household.

SPLIT INCOME EXTENSION

It should be noted also that a surviving widow or widower may continue to file a joint return for two taxable years following the year of death of a husband or wife, provided the survivor maintains a household which is the home of a child or stepchild for whom the taxpayer is entitled to a dependency deduction.

DIVIDEND CREDIT AND DIVIDEND EXCLUSION

One of the major changes in the law is the treatment of dividends by the taxpayer. First, there is an exclusion from gross income of the first $50 of dividends received by an individual at any time during 1954. This exclusion may be $100 on a joint return if both husband and wife received dividends of at least $50 each.

Second and more important is the provision for a credit against the tax of 4% of all dividends received after July 31, 1954. The 4% credit may not exceed 2% of the taxable income for 1954, but for 1955 the limitation is 4% of taxable income.

The investor should know that dividends received from regulated investment companies designated as capital gain dividends are not eligible for the exclusion or the credit. The code provides that the shareholders are required to be notified, within 30 days after the close of the company's taxable year, concerning the portion of a dividend distribution that may come within the exclusion and credit benefits.

SOME MISCELLANEOUS PROVISIONS RELATING TO DIVIDENDS

Under the 1954 code, a stock dividend, that is, a distribution made by a corporation to its shareholders in its own stock will not be includible in gross income. Under the 1939 code, a stock dividend could be taxable if it gave the stockholders a different proportionate interest in the corporation than they had before the distribution.

However, if the distribution of stock is in lieu of money, the dividend is taxable. This would be true where a stockholder is given an option to receive either stock or cash.

For years there had been much confusion over when a dividend is received. The law is now clear that a dividend is taxable when it is actually received, both for the accrual-basis taxpayer as well as the taxpayer on a cash basis. That is, when the dividend is unqualifiedly made subject to the demand of the shareholder.

For example, if a dividend is declared payable on December 31, and the corporation follows a practice of paying the dividend by mailing a check to the shareholder, which he receives in January of the following year, the dividend is taxable in the year in which the check is actually received, even though the check is dated December 31.

A dividend paid in property other than money is taxable at its fair market value. The property is deemed the equivalent of cash.

REDEMPTION OF STOCK AS EQUIVALENT TO A DIVIDEND

A redemption of stock by a corporation resembles closely a sale or exchange resulting in a capital gain. This proved to be an easy device for distributing the earnings and profits of a corporation at capital gain rates rather than as dividend distributions at ordinary rates.

Under the 1939 code, Congress tried to prevent such an avoidance of a tax at ordinary rates, by providing that, if a corporation cancels or redeems its stock at such a time and in such a way as to make the distribution equivalent to the distribution of a dividend, the amount received by the stockholder would be treated as a taxable dividend, to the extent that it was out of earnings and profits. Many a stockholder taxpayer came a cropper because of this provision.

The 1954 code has a similar provision, but it introduces a few other provisions that will make it possible for a stockholder to have his stock redeemed without subjecting himself to a tax at ordinary rates. If a distribution is substantially disproportionate, with respect to a stockholder, and if, after the redemption, he owns less than 50% of the voting stock, the result is an exchange and not a dividend.

The distribution is deemed to be substantially disproportionate if the ratio of the holdings of voting stock after the redemption is less than 80% of the ratio of his holdings immediately before the redemption. It is thus possible for one stockholder to be entirely bought out by the corporation so that he retains no interest in it, without being subject to any tax on a dividend.

It should be noted further that the redemption can be nullified as a capital gain transaction if the stockholder acquires an interest in the corporation within ten years from the distribution, unless he acquires the interest by bequest or inheritance.

The Treasury Department seeks to prevent distribution of earnings and profits at capital gain rates, if no business purpose is served, if the corporation has large accumulations of profits, and where the redemption is merely a device to avoid the tax on ordinary dividends.

RETIREMENT INCOME CREDIT

This is a neat little gadget that is intended primarily to benefit individuals who are at least 65 years of age. The individual may reduce his tax by what is called retirement income in an amount presently not in excess of 20% of $1,200. Under this provision, it is possible for an unmarried individual who is 65 years of age to receive a maximum amount of $2,666 of retirement income tax-free (taking into account his exemptions and standard deduction). A married individual with a wife who has no retirement income could receive as much as $4,000 of retirement income tax-free, and a married couple each of whom qualifies could receive a maximum amount of $5,333 tax-free.

Retirement income consists of taxable pensions, annuities, interest, rents, and dividends. Although the credit is limited to $1,200 of such income, it must be reduced by any nontaxable social security benefits or retirement pensions. Also, if an individual is under 75, the $1,200 is further reduced by any earned income in excess of $900. This reduction does not apply to an individual at least 75 years of age.

To be eligible for the retirement income credit, there is one further qualification: The individual must have earned income of at least $600 a year in each of any ten calendar years before the taxable year. It is further provided that a widow qualifies for this credit if her husband had earned at least $600 in each of any ten years while he was alive. Many a widow living on investments will find her tax reduced by $240 under this provision.

ANNUITIES

Under the 1939 code, a tapayer who received annuity payments included in his taxable income an amount equal to 3% of the cost of the annuity. The rest of the annuity payment was excluded from income until the total of the excluded portion equaled the cost of the annuity. After that the entire annuity payment was taxable. This rule had been much criticized, first, becaust 3% was considered as unrealistic, and, second, because the cost of the annuity could not be recovered unless the annuitant lived longer than his life expectancy.

The new code abandons the 3% rule. Now the basis for determining the taxable portion of an annuity payment is the life expectancy of the taxpayer. The cost of the annuity is divided by the life expectancy of the annuitant at the time payments commence under the annuity contract. That portion of the annuity is excluded from gross income for the rest of the taxpayer's life, even if he lives beyond his life expectancy. The balance of the annual payment is included in taxable income.

On annuity payments in effect before January 1, 1954, the taxpayer's life expectancy is determined as of January 1, 1954. The cost of the annuity is the original cost minus tax-free recoveries before January 1, 1954, under the former 3% formula. The effect on old annuities in many instances will be to tax a greater portion of the annual payment than under the 3% rule. In spite of that, the new rule is a more equitable one.

EMPLOYEE PENSIONS

Employee pensions come within the new provisions, except where the employee receives payments within the first three years that equal his total contributions to the pension fund. In those cases, all pension payments are exempt until the employee has recovered his cost. After that the entire payment is taxable in full.

In joint and survivor annuities, the cost of the annuity is divided by the combined life expectancy of the annuitants to determine the annual exclusion.

If the proceeds of annuity, endowment, or life insurance contracts paid for reasons other than the death of the insured are received in a lump sum in one year, the excess of the amount received over the unrecovered cost is, of course, taxable. However, under the new code, the tax is determined as though the payment had been received ratably, in the taxable year and the two preceding years. This is the familiar treatment accorded compensation covering work that is performed over a period of at least 36 months.

If an insured under an option in an insurance contract elects to receive the proceeds as an annuity instead of a lump sum, the latter will not be taxable as having been constructively received, as it was under the 1939 code. Instead, the installment payments will be taxed under the annuity rules. It should be noted that this election must be made within 60 days after the lump sum first becomes payable.

LIFE INSURANCE

As a general rule, the proceeds of a life insurance policy paid by reason of the death of an insured are not subject to income tax. If a beneficiary elects to receive the proceeds in installments, the installments include interest. Under prior law, the interest portion was not taxable. Under the new code, such interest will be taxable, except for the first $1,000 a year if paid to a surviving spouse.

An exchange of a life insurance contract for another contract is a taxable transaction. However, under the new code, no gain results from an exchange of one life insurance contract for another life insurance, endowment, or annuity contract. No gain results from an exchange of an annuity contract for another annuity contract.

ESTATE TAX CHANGES

A very important change has been introduced in the new law in the estate tax provisions relating to life insurance. Under prior law, the proceeds of life insurance policies were included in a decedent's gross estate, to the extent that the decedent had paid the premiums on the policy, or if he possessed any incident of ownership in the policy at the time of his death. An incident of ownership includes the right of the insured or his estate to its economic benefits, the power to change the beneficiary, the power to surrender the policy, the power to assign a policy or to revoke it, the power to pledge the policy for a loan, the power to borrow against the surrender value of the policy from the insurer, and so on.

Under the new code, the payment of premium test has been eliminated, although the incident of ownership test still remains. If a taxpayer gives up all incidents of ownership, therefore, the proceeds will not be subject to the estate tax, even though the insured continues to pay the premiums on the policy.

A taxpayer contemplating this means of saving estate taxes should be aware that a reversionary interest in the policy is considered an incident of ownership, if the value of such interest exceeds 5% of the value of the policy at death. Such interest includes the possibility that the policy or its proceeds may revert to the decedent or his estate and may arise by operation of law. The value of the reversionary interest is computed on the basis of actuarial tables.

AMORTIZABLE BOND PREMIUM (SECTION 171)

This section of the law deals with the right of a taxpayer to amortize the premium he pays on the purchase of a bond which is partially tax-exempt or wholly taxable. Under the 1939 code, the premium could be deducted over the life of the bond or over the period up to the earliest call date. This provision created an opportunity for tax avoidance, since bonds were issued subject to a 30-day call, enabling a bondholder to deduct the entire premium against ordinary income immediately.

The present code attempts to meet what Congress considers an abuse by providing that, for fully taxable bonds issued after January 22, 1951, and acquired after January 22, 1954, the premium may be amortized to the earlier call date only if that date is more than three years after the date of issue of the bond. If the bond actually is called before maturity, that portion of the premium not yet amortized may be deducted from income in the year in which the bond is called. Under the 1939 code, the right to amortize a premium was restricted to registered bonds or bonds with interest coupons attached. This requirement has been eliminated in the 1954 code.

MEDICAL EXPENSE DEDUCTION

In recent years, the medical deduction has become significant, and the new code increases the amount allowed. A deduction is now allowed for medical expenses in excess of 3% of adjusted gross income, instead of 5%, for a person under 65.

There is no floor to the deduction of the taxpayer who is at least 65. The ceiling also has been raised to $2,500 for each exemption, instead of $1,250, and the over-all limit has been raised to $10,000 for a head of a household, or a married couple filing a joint return, and $5,000 for a single taxpayer.

The new law introduces one limitation not present under the 1939 code. Expenditures for drugs and medicines qualify as medical expenses, but these are limited to the excess of 1% of adjusted gross income. This limitation would apply even to taxpayers 65 years of age or over. Essential transportation expenses may qualify as medical expenses, but expenses for meals and lodging would not.

HEALTH AND ACCIDENT PLANS

Compensation for personal injuries or sickness under workmen's compensation acts or under accident and health insurance policies purchased by a taxpayer are exempt from tax. Excepted from this provision are amounts received in cases where premiums on the policy have been deducted as medical expenses.

If the plans are financed by the employer, the amount received by the employee as payments for medical care, payments for permanent injury, and wages paid during a period of absence from work as a result of injury or illness are excluded from gross income. With respect to payments for medical care, the exclusion applies to medical expenses of a spouse or dependents. The payments are excludible in full in the year of receipt, even though the employee does not actually pay the medical expenses in that year. However, the exclusion does not apply to medical expenses for which the employee has taken a deduction in any prior taxable year.

With respect to compensation for loss of wages, there are several limitations. First the exclusion is limited to a maximum rate of $100 a week. On a five-day week that would be $20 a day. On a six-day week it would be $16.67 a day.

Second, no exclusion generally is available for payments attributable to the first seven calendar days of absence. This waiting period, however, does not apply if the employee is hospitalized on account of sickness for at least one day during the period. There is no waiting period requirement for the exclusion, if the employee's absence is due to an injury, even if the employee is not hospitalized.

NO FORMAL PLAN NECESSARY

No formal plan is necessary to qualify for this exclusion. If it is the general policy of an employer to make such payments, this special exclusion is available to the employee.

A question has arisen whether the employer is required to withhold income tax on excludible payments. The regulations do not require any withholding.

The new code provides that contributions by an employer to accident and health plans of any kind are not taxable as income to the employees.

HOLDING PERIOD OF CAPITAL ASSETS

Since long-term capital gains are given favored treatment in the tax law, it may become important to establish that an asset has been held over six months. The new code provides specific rules for determining the holding period in special situations.

For example, for property acquired by gift or by transfer in trust, the holding period includes the time the property was held by the donor, if the donee is required to use the basis of the donor in determining his gain or loss. If, in determining a loss, the value at the time of the gift is used, the holding period of the donor is not tacked on to the holding period of the donee.

The holding period of a patent begins on the date the invention is put into use, or the date when the patent is issued, whichever is earlier. In an involuntary conversion, the holding period of the converted property is included if the basis of the new property is determined by reference to the basis of the old property.

For stock acquired as a stock dividend, the holding period includes the holding period of the stock with respect to which the dividend was paid. This rule has been extended to stock acquired in a "spin-off," even though the "spin-off" occurred before 1954.

The holding period for property distributed to a partner includes the period for which the partnership held the property. Commodities acquired in a futures contract are considered to have been held for the period during which the futures contract was held if the contract is a capital asset. In a "wash sale" the holding period of the securities acquired includes the holding period of the securities which were sold at a loss which was not recognized.

BASIS FOR GAIN OR LOSS

One refuge from high income rates is the shelter afforded in the capital gain provisions of the law, since the maximum rate for capital gains is now 25%. The determination of a gain depends on the cost or other basis of property sold or exchanged. Hence the basis provisions become important. Some of these will now be discussed here.

The starting point for determining gain or loss is the cost of property, the original capital invested in it. If the property is depreciable, the cost must be adjusted to date of disposition. If the property has been the subject of a gift or a nontaxable exchange, the original basis is continued from one taxpayer to another, or from one piece of property to another. Such a basis is called a substituted basis. Capital expenditures, such as improvements to property, are added to the original basis.

EFFECT OF CAPITALIZATION OF CARRYING CHARGES

Taxes or other carrying charges on property in certain situations, especially unimproved property, may be treated as capital charges instead of as deductible expenses. Where a taxpayer has elected this treatment, the expenditure is added to the cost of the property.

It should be noted that, in the case of annual taxes and interest on a mortgage on unimproved and unproductive real property, an election to capitalize them in one year does not bind the taxpayer in his treatment of these expenditures in other years. A capital recovery and the deduction for depreciation or depletion reduces the original cost or basis of property.

BASIS IN THE CASE OF A RESIDENCE

For property used as a residence, no adjustment for depreciation is required since none is allowable as a deduction. However, permanent improvements to the residence may be added to the basis.

If the gain on a sale of a residence is not to be recognized because a new one was acquired within a year, the basis of the new residence is reduced by the unrecognized gain on the sale of the old residence. A loss on the sale of a residence is not deductible.

BASIS FOR INHERITED PROPERTY

Property acquired through bequest or inheritance takes as a basis the fair market value of the property at decedent's date of death. If the executor values such property for estate tax purposes as of the date one year after the date of death, which he may do, the optional valuation becomes the basis for subsequent gain or loss to the estate or to the person to whom the property passes. Property may be included in the gross estate which was the subject of a transfer during the decedent's lifetime, a gift in contemplation of death, for example.

The basis for such property under the new code is also the value as of the date of decedent's death, or optional valuation date, unless such property has been sold or otherwise disposed of before the decedent's death. One exception to the basis rule for property acquired by bequest or inheritance should be noted.

If a bequest of a specific amount is settled by transferring securities to the legatee worth that amount, the transaction is treated as a sale by the fiduciary. The basis of the property to the legatee becomes the fair market value of the securities at the time that the transfer is made to the legatee.

Many taxpayers are not alerted to the fact that the transfer of property by a corporation to a shareholder or by an employer to an employee for an amount substantially less than the fair market value of the property may result in income to the shareholder or to the employee represented by the difference between the amount paid for the property and its fair market value. In such a case, the basis of such property becomes the amount paid for it increased by the amount included in gross income. Restricted stock options are subject to special rules.

BASIS FOR CONTRIBUTED PROPERTY

If an exchange of property is tax-free, problems of basis for the property received in exchange arise. Some of those situations will be considered.

If a shareholder contributes property to a corporation as paid in surplus, the property takes the transferor's basis. If a gain is recognized to the transferor because of the transfer, the basis to the corporation is increased by the amount of the gain.

Property contributed on or after June 22, 1954, to a corporation by nonstockholders will have a zero basis. If an outsider contributes money, the basis of property acquired by the corporation with the money within a 12-month period will reduce the basis of the property by the money contribution. To the extent that the contribution is not used to acquire property within the 12-month period, it must be applied in reduction of the basis of any other property held by the corporation, as of the last day of the 12-month period.

BASIS ADJUSTMENT RESULTING FROM DISCHARGE OF INDEBTEDNESS

Any income resulting from the discharge of indebtedness may be excluded from tax, provided the indebtedness was incurred in connection with business property and the taxpayer consents to treat the income as a partial recovery of the cost of its property by reducing its basis.

CAPITAL GAINS AND LOSSES

The favorable tax treatment of capital gains applies generally only to sales or exchanges of capital assets. The law defines capital assets as all property, with certain exceptions. The new law adds to the exceptions notes and accounts receivable acquired in the ordinary course of business for services or from the sale of merchandise. A capital asset includes a partnership interest.

SALE OR EXCHANGE REQUIREMENT

Although a sale or exchange of a capital asset is required to establish a capital gain, other transactions are regarded as sales or exchanges. For example, amounts distributed in complete or partial liquidation are treated as full or in part payment in exchange for stock. Loss on worthless securities is treated as if it was a sale or exchange of capital assets on the last day of the taxable year. The failure to exercise an option results in a capital gain or loss if the property covered by the option would have been a capital asset.

LONG-TERM AND SHORT-TERM CLASSIFICATION

The new code continues a comparatively recent change in the treatment of long-term and short-term gains and losses. It provides that both long- and short-term gains and losses are to be taken into gross income 100%. But for a taxpayer other than a corporation, if there is an excess of a net long-term capital gain over a net short-term capital loss, a deduction of 50% of such excess may be taken from gross income.

BUSINESS REAL ESTATE OR DEPRECIABLE BUSINESS PROPERTY

These items are excluded from the definition of capital assets. But a special provision in the law allows a taxpayer to treat a net gain on the sale or exchange of such assets held for more than 6 months as a long-term capital gain. At the same time, if the result is a net loss, it may be treated as an ordinary loss.

TIMBER, COAL, AND LIVESTOCK

The cutting of timber for sale or use in a trade or business is specifically treated as resulting in capital gain if the taxpayer so elects. For this purpose, evergreen trees more than six years old at the time they are severed from the roots and sold for ornamental purposes are included in the definition of timber. To exercise the election, the taxpayer must have owned the timber or a contract right to cut it for more than 6 months before the beginning of the taxable year.

This provision is a boon to the timber industry. The coal industry too receives special treatment, in that the disposition of coal under a coal royalty contract with a retained economic interest results in capital gain, and this privilege is extended to sublessors. Under a coal royalty contract, expenditures attributable to the making and administering of the contract and to the preservation of the retained economic interest are added to the basis and thus reduce the amount of capital gain realized.

The sale and involuntary conversion of livestock held for draft, breeding, and dairy purposes is also given a preferred capital gain treatment. The livestock must be acquired at least 12 months before the date of disposition. Livestock that is destroyed by disease or sold because of it is deemed to be an involuntary conversion. But poultry is not livestock.

DEALER IN SECURITIES OR REAL ESTATE

To a dealer, securities may be held for sale to customers, and hence such income would be ordinary income and not capital gain or loss. But a dealer may hold securities primarily for investment. If he does, he must identify this clearly in his records within 30 days after he acquires it. Once the security is so earmarked, the dealer will not be able to treat a loss as an ordinary loss. The same rule applies to a dealer in realty.

For banks, a different rule applies. If losses from the sale of all securities during the year exceed the gains, the bank may treat the net loss as an ordinary loss.

PATENTS

All inventors and also any other individual acquiring an interest in a patent from the original inventor, for money paid to the inventor before actual reduction of the invention to practice, may treat profits from the sale of the patent as long-term capital gains. The other individual may not be the employer of the inventor or related to him, except for a brother or sister.

Capital gain treatment extends to the periodic payments of royalties. All substantial rights to the patent, or at least an undivided interest in it, must be transferred. This provision applies to payments received in any year ending after August 16, 1954, even though the patent was disposed of in a prior year.

SHORT SALES

A short sale is a sale of stock that the seller generally does not own at the time of the sale. He borrows the stock for the purpose of delivering what he sold.

Since he intends later to buy the stock in order to "cover" the short sale, there is no completed transaction until the covering purchase has been made. In the meantime, stock is borrowed to effect delivery on the short sale.

If the property used to close the sale is a capital asset in the hands of the taxpayer, the result of the transaction is a capital gain or a capital loss. Otherwise, it is an ordinary gain or loss.

An option to sell stock at a fixed price, known as a "put" is also considered a short sale, except where the security identified as intended to be used in exercising the "put" is acquired on the same day as the option, and the option, if exercised, is done through the sale of such security. If the option is not exercised, the cost of the option is added to the basis of the stock with which it is identified.

SHORT-TERM GAIN OR LOSS

A short sale normally results in a short-term gain or loss, since the covering purchase is usually made at about the time delivery is made to the lender, and this closes the short-sale transaction. If the seller maintains both a long and short position on substantially identical securities, special rules apply as to whether the closing of the short sale is a long- or short-term capital gain.

A gain on the closing of the short sale is short term, no matter when the property used in closing the transaction is acquired. The holding period of the substantially identical property is deemed to begin on the date that the short sale is closed, or on the date of a sale, a gift, or other disposition of such property, whichever occurs first.

A loss on the closing of the short sale is a long-term capital loss if substantially identical property had been held on the date of the short sale for more than 6 months. This rule applies, no matter when the property actually used to close the short sale was acquired.

RULES PREVENT MANIPULATION

These rules prevent a taxpayer from manipulating his transactions in such a way as to obtain the benefits of a short-term capital loss instead of one that is essentially long term, and the benefits of a long-term capital gain that is essentially short term.

WASH SALES

In a free market, it is quite simple to buy and sell securities and so control the establishment of a loss. To put a brake on the possibility of establishing losses merely for tax purposes, the wash sale provisions were enacted.

These provide that a loss sustained on a disposition of securities is not allowed if the taxpayer has acquired substantially identical stock within a period of 30 days before the sale or 30 days after the sale. A sale made on December 15, 1954, resulting in a loss followed by a repurchase on January 5, 1955, would come within this provision, and the 1954 loss would be disallowed.

EFFECT OF THE SALE

The effect of the sale is said to be washed away by the subsequent purchase within the prescribed period. Hence the term wash sale. The provisions apply to all taxpayers, including a bank unless the bank can be classified as a dealer in securities.

The basis of the securities purchased which resulted in the nondeductibility of the loss is the basis of the stock sold, increased or decreased by the difference between the price at which the substantially identical securities were acquired and the price at which the stock was sold.

A sale or exchange of property between blood members of a family is not allowed. Under the 1939 code, this loss could never be utilized. The new code mitigates the harshness of the rule under the prior code, by recognizing any gain to the original transferee when he disposes of the property, only to the extent that such gain exceeds the disallowed loss to the transferor.

DISALLOWED LOSSES

The benefit of this provision will apply to a disposition made after 1953, regardless of when the initial transfer occurred. It should be noted that this provision does not affect the basis of the property to the transferee, which remains his cost, nor to the holding period, which dates from the time of his acquisition.

IF ONE OWNS 50% OF STOCK

A loss would also be disallowed in a transaction between an individual and a corporation, if the individual owns directly or indirectly more than 50% in value of the outstanding stock. The rule applies also to a transaction between a grantor and a fiduciary of a trust, a fiduciary of one trust and a fiduciary of another trust, if the same person is the grantor of both trusts, a fiduciary of a trust and any beneficiary of the trust, a fiduciary of a trust and a beneficiary of another trust, if the same person is a grantor of both trusts.

NONBUSINESS BAD DEBTS

Losses resulting from bad debts are deductible from gross income. If the debt qualifies as an ordinary and necessary expense of a business, it is deductible in full as an ordinary loss.

The new law includes, as a business bad debt, one that arose in connection with a business, even though it became worthless at a time when the taxpayer was no longer carrying on the business. Under prior law, such a debt was considered a nonbusiness bad debt. A business bad debt is deductible when it becomes worthless, or, if it is recoverable in part, a deduction is allowed for the part charged off within the taxable year. Instead of deducting specific bad debts, a taxpayer may deduct a reasonable addition to a reserve set up for that purpose.

SPECIFIC DEBTS CHARGED AGAINST RESERVE

Where the reserve method is used, specific bad debts are charged against the reserve. If a taxpayer reports his income on a cash basis, no deduction is allowed unless the worthless debt represents an actual cash loss. That means that, if the debt arises out of an income transaction, no deduction is allowed because the income had never been reported for income tax purposes.

SHORT-TERM CAPITAL LOSS

If a nonbusiness debt becomes entirely worthless, the loss is deductible, but only as a short-term capital loss. In other words, the loss is subject to all the limitations on capital losses. The principal limitations are, first, that the loss is deductible only to the extent of long-term or short-term gains. For an individual it is deductible up to $1,000, or up to taxable income computed without the personal exemptions being taken into account. The excess of capital losses not deductible in one year may be carried forward for five succeeding years until it is absorbed.

OLIN MATHIESON CHEMICAL CORPORATION

SUMMARY OF CONSOLIDATED RESULTS

Includes only Domestic and Canadian operations

	Pro-Forma	
	1954	**1953**
Net Sales	$470,108,000	$464,605,000
Pre-Tax Profit	60,554,000	67,659,000
Per common share	5.41	6.35
Federal and Foreign Income Taxes	26,262,000	37,566,000
Per common share	2.39	3.58
Net Profit	34,292,000	30,093,000
Per common share	3.02	2.77
Preferred Dividends	1,010,000	988,000
Common Dividends	19,018,000	15,992,000
Total Dividends	20,028,000	16,980,000
Common Shares Outstanding at Year-End	11,006,365	10,495,599
Number of common stockholders	36,000	33,000
Working Capital at Year-End	174,794,000	146,121,000
Ratio of current assets to current liabilities	4.2	3.4
Plant and Equipment at December 31	345,433,000	325,709,000
Total Assets at December 31	619,867,000	562,890,000
Employees, Including Overseas, at December 31	35,600	36,800

For a copy of the complete annual report for 1954, address the Office of the Assistant Secretary, Olin Mathieson Chemical Corporation, 14 Light Street, Baltimore 3, Maryland.

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OLIN MATHIESON CHEMICAL CORPORATION

New York, N. Y. Baltimore, Md. East Alton, Ill.

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A Statistical Approach to Formula Planning

ZENON SZATROWSKI

EXISTING FORMULA PLANS are supposed to be a set of objective rules that enable the investor in common stocks to sell at relatively high levels of the cyclical fluctuations and buy at relatively low levels. Usually some trend in stock prices is considered as the "normal" or median value of common stocks, and bands above and below the normal value represent price levels where selling and buying, respectively, should take place.

The main criticism of existing plans is that their performance has not been evaluated objectively. The evaluation of such plans can be done in two ways.

One way is to assume that common-stock prices follow a well-defined model. For example, the time series is made up of a trend and fluctuations around the trend where both the trend and amplitude of the fluctuations are specified. Then one can determine whether or not a specific plan gives satisfactory performance for such a theoretical price series in the long run.

The other possibility is to test the plan by applying it to the common-stock price series as it actually developed, using only the past data in making a decision at a particular time. Some of the existing plans have not been evaluated at all, whereas others have been evaluated unrealistically by making use of hindsight. Their performance in the past has been tested by using data for trend and amplitude that would have been available only in the future.

The following formula plan is objective. It makes use of statistical tools which are especially suitable for this kind of analysis. The plan is so formulated that only past data and no hindsight are used in testing its performance. Furthermore, the reasoning on which the plan is based is consistent with principles of investment which are accepted in practice by many financial analysts.

RESULTS OF THE FORMULA PLAN, 1877–1954

The accompanying table presents the actual transactions that developed when the formula plan was applied in the past, it being assumed that the investments were made in Standard & Poors index of industrials and that brokers' fees were 1% for each transaction. Thus, if stocks were bought in July 1877 at 14.81 and held through 1954, their value would increase 20-fold to a price of about 300 in December 1954.

The formula plan, on the other hand, would increase capital 100-fold, from $1,000 to $104,000 for the same period. The growth in the formula plan fund is compared with the growth in Standard & Poors index of industrials in the graph. An explanation of the formula plan procedure is given in the following section.

DESCRIPTION OF THE FORMULA PLAN

The formula plan is similar to existing plans in that a "normal" value for common-stock prices is used, and a larger proportion of the fund is involved in a transaction as the level of prices deviates more from this normal value. An important difference is the use of the principle: "Let profits run, and cut losses."

This principle is applied by carrying out a transaction only after an unusual reaction to the rising or declining phase of the cycle actually occurs. The essential characteristics of the plan can be listed as follows:

1. The "normal" or expected level of common-stock prices for the next year is calculated at the end of each year, by using the "best" relationship between present price level and the average levels of the past.
2. The distribution of the deviations from the normal level is determined from the past data. This is used to determine the proportion of times that a given deviation occurred in the past, and this, in turn, is used to determine whether a given price level is unusually high or low.
3. Both the normal level and distribution of the deviations are recomputed each year, in order to take into account changes in level and range of fluctuations.
4. The objective rules used in operating the plan are:

(a) Buy stock only if, but not necessarily if, prices are below the expected level.

(b) Sell stock only if, but not necessarily if, prices are 5% above the expected level.

(c) Do not sell or buy unless an unusual reaction to the trend in prices develops. Whether or not a reaction is unusual is determined from a distribution of monthly changes in the past.

(d) When the market is in the selling or buying area, and an unusual reaction to the trend has occurred, then adjust holdings so that the proportion in cash is equal to the probability of getting higher prices. This probability is estimated from the distribution of past deviations of common-stock prices from their normal level.

THE TREND OF "NORMAL" VALUE FOR COMMON-STOCK PRICES

The data used in calculating the "normal" value are the logarithms of the annual averages of Standard & Poors index of industrials. Logarithms are used for two reasons.

First of all, in dealing with prices, relative changes are important, and changes in logarithms reflect relative changes. Second, in the common-stock price series, the trend is essentially a straight line, if logarithms are used. The formula for estimating the "normal" value is

$$Y(t) = AX(t-1)^B \tag{1}$$

$$\log Y(t) = \log A + B \log X(t-1) \tag{2}$$

where $\log Y(t)$ is the logarithm of the annual average of Standard & Poors index of industrials for the year t and $\log X(t-1)$ is the arithmetic mean of the logarithms of the annual averages for the preceding years beginning with 1871. These formulas represent a simple autoregressive re-

Results of the Formula Plan

Date	S&P Index of 420 Industrials, Annual Avg.	Value before Transaction		Indicated % Cash According to Plan	Cash after Transaction
		Of Stock	Of Cash & Stock		
July 1877	14.81	0.00	1,000.00	00.5	5.00
Nov 1882	21.40	1,423.31	1,428.31	99.7	1,419.04
Feb 1885	19.05	0.00	1,414.17	25.0	353.54
July 1887	23.39	1,289.26	1,642.80	95.8	1,573.80
Oct 1889	29.16	70.86	1,644.66	99.5	1,636.44
Jan 1891	25.83	6.72	1,643.16	49.5	813.36
Sept 1893	21.58	686.46	1,499.81	00.8	12.00
May 1899	33.41	2,290.92	2,312.92	97.2	2,248.16
July 1900	38.29	48.63	2,296.79	99.6	2,287.60
Dec 1903	24.29	5.59	2,293.19	03.0	68.80
Mar 1907	39.46	3,577.44	3,646.24	98.1	3,576.96
Jan 1908	28.26	24.59	3,610.55	01.8	64.83
Jan 1911	41.63	5,160.31	5,160.31	37.8	1,950.62
Dec 1912	47.23	3,604.12	5,554.74	84.6	4,699.31
Apr 1915	44.50	780.08	5,479.40	43.1	1,868.48
Jan 1918	48.22	3,882.19	5,750.67	15.6	897.10
Aug 1919	67.45	6,635.06	7,532.16	93.6	7,050.10
Feb 1920	62.12	387.00	7,437.10	95.8	7,124.74
Nov 1921	48.04	241.16	7,365.90	00.4	29.46
Mar 1926	87.00	13,157.34	13,187.88	94.6	12,447.35
June 1928	133.90	948.01	13,395.36	99.9	13,381.96
Aug 1932	46.50	1.40	13,383.36	06.0	0.00
Apr 1937	128.80	37,098.26	37,098.26	70.2	26,042.97
July 1938	95.90	8,037.38	34,080.35	02.3	783.85
Jan 1952	204.30	70,395.65	71,179.40	73.9	.. ..
Dec 1954	300.00	103,368.97	104,152.92	89.5	.. ..

lationship where the *A* and *B* values are redetermined each year from past data by means of the least-squares method.

For example, at the end of 1937 ($t = 67$), the above relationship would be based on the past 66 years of data beginning with 1871 ($t = 1$). The least-squares relationship at the end of 1937 was determined to be

$$Y(t) = 0.671X(t - 1)^{1.44}$$

or $$\log Y(t) = -0.1735 + 1.44 \log X(t - 1)$$

The *B* coefficient, 1.44 in the above illustration, is an "elasticity" which can be interpreted as follows. If the average value of stock prices in the past, $X(t - 1)$, increases by 1%, then the estimated value of a given annual average will increase by 1.44%.

Using the above relationship, based on data from 1871 through 1937, one could estimate the "normal" value for the next year 1938. To illustrate, the geometric mean of the annual averages from 1871 through 1937, $X(1937)$, was 38.07. If this value is used for X in the equation, the estimate of the normal value for 1938, $Y(1938)$, would be 126.9.

By following a similar procedure, for the data at the end of 1954, equations 1 and 2 were found to be

$$Y(t) = 0.593X(t-1)^{1.528}$$

or $$\log Y(t) = -0.227 + 1.528 \log X(t-1)$$

Hence, the "normal" value for 1955 would be 223.4, which obtained by substituting 48.49, the geometric mean of the annual averages from 1871 to 1954, in the above equation for $X(t - 1)$.

The graph of the "normal" values, calculated as above, is presented in the figure as a heavy line drawn through the range of Standard & Poors index of industrials. The width of the "normal" value line is equivalent to a 5% change, so that the top of this wide line represents a price level 5% above the "normal."

FLUCTUATIONS AROUND THE "NORMAL" VALUE

The least-squares or correlation method used in determining the relationship between the annual average and the average of the past also yields a standard error of estimate. This standard error of estimate can be used to determine whether or not fluctuations around the "normal" give rise to price levels that are unusually high or low.

As with the "normal" value, the standard error is recomputed each year from past data. Based on monthly data through 1954, the standard error was equal to 28.5% of the normal value, and two standard errors was equivalent to 64.2% of the trend.

NORMAL DISTRIBUTIONS ASSUMED

In the formula plan, it is assumed that the deviations around the "normal" value have a normal distribution, so that probability statements about the deviations are based on the normal distribution. Thus, if the price level were two standard errors above the normal, it would be assumed that (consistent with a normal distribution) the probability of higher levels is only 0.025. Hence, after an unusual reaction, only 2.5% of the fund should be kept in common stocks.

It should be pointed out that, in this analysis, the term probability is used loosely, and the question of whether or not the deviations have an exactly normal distribution is not a very significant issue. The important aspect of this procedure is that it leads to an objective determination of the proportion of funds allocated to common stocks.

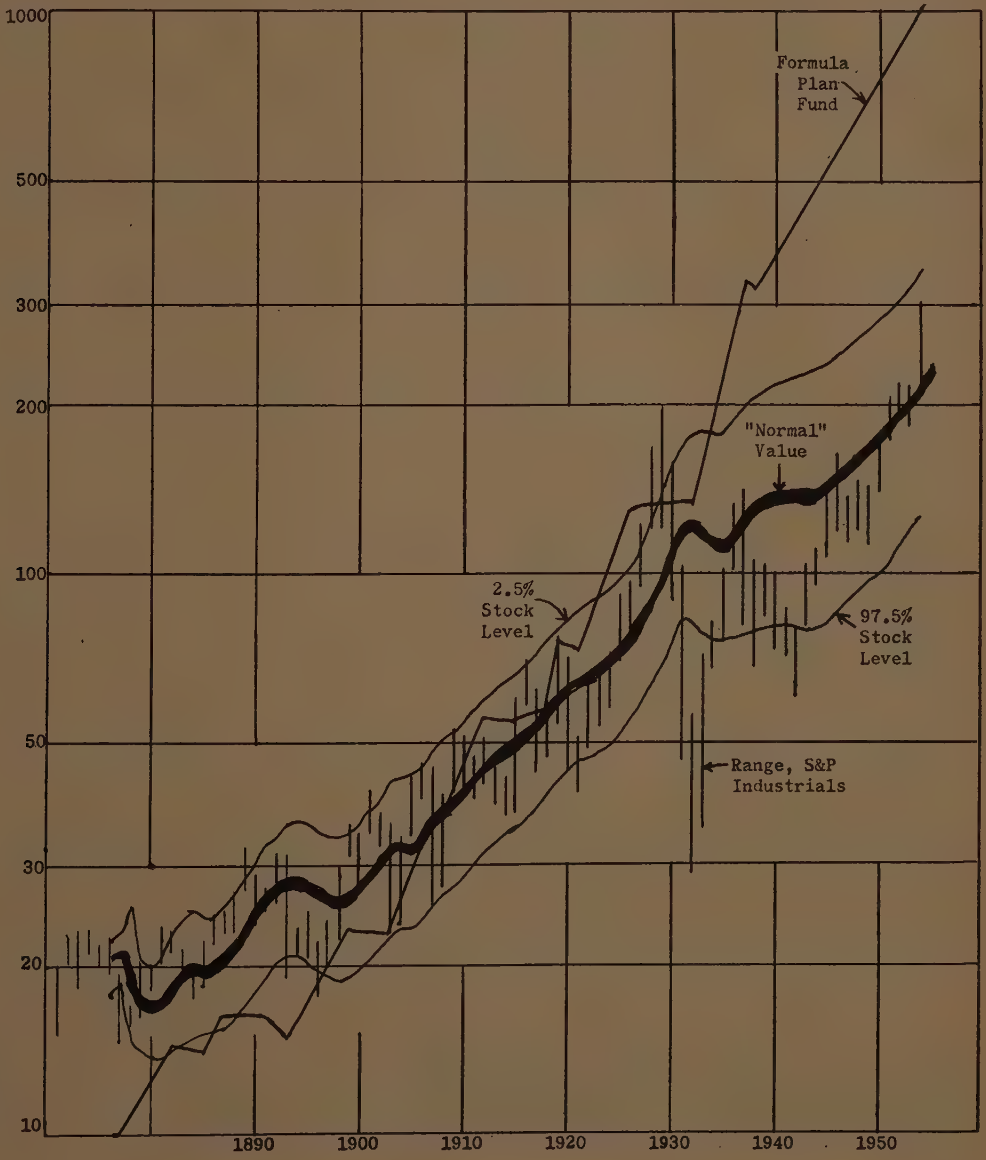
The two-standard-error upper and lower limits are plotted in the graph. A price level above the two-standard-error upper limit indicates a position of only 2.5% in common stocks. Similarly a level below the two-standard-error lower limit indicates a position of 97.5% stocks.

These two limits are presented in the chart, in order to show how they compare with the actual range of fluctuations. In actual application of the formula plan, there is a continuous determination of the percentage of stocks at various levels.

DETERMINATION OF UNUSUAL REACTION TO UPWARD OR DOWNWARD PHASE OF CYCLE

An important aspect of this formula plan is the application of the principle: "Let profits run, and cut losses." Stocks are not automatically bought or sold when price levels reach assigned levels.

The extent of the deviation from the "normal" merely determines what proportion of the fund should be invested



Formula-Plan Fund and Standard & Poors' Index of Industrials on Logarithmic Scale in stocks. The actual transaction, adjustment in the fund, takes place only after an unusual reaction in the monthly averages develops.

The determination of an unusual change in the monthly averages is based on the assumption that 1,000 times the changes in the logarithms of the monthly averages have a Poisson distribution. It is assumed that an unusual change is one that has a probability of less than 0.0001.

The use of a Poisson distribution is relatively simple. The mean monthly change is determined by using the changes from the previous extreme (high or low of the cycle) to the current "normal" value. By taking into account the number of months involved, the mean monthly change can be estimated. Then the 0.0001 change can be determined by using tables of the Poisson distribution.*

ILLUSTRATION OF FORMULA-PLAN PROCEDURE—1955 RISING PHASE OF CYCLE

The "Normal" Value. The "normal" value (Standard & Poors index of industrials), for the middle of 1955, has been determined to be 223.4, or 2.349 in terms of logarithms. The "normal" value for the middle of 1954 was determined to be 207.5, or 2.317 in terms of logarithms.

The December 1954 logarithm of the "normal" value is obtained by interpolation between 2.317 and 2.349 to be 2.333. The December value is needed because the highest level of the rising phase of the cycle was reached in this month.

The Proportion of Stocks. The standard error of estimate at the end of 1954 was determined to be 0.109 in terms of logarithms and on a monthly average basis. The monthly average of Standard & Poors index of industrial for December 1954 was about 296, and the logarithm of this value was 2.471.

Thus, in terms of logarithms, the December average was 0.138 (2.471 — 2.333) above the normal, or the December average was 1.27 standard errors above the normal (0.138/0.109 = 1.27). Entering the normal curve table of probabilities at the value 1.27, we get 0.105 to be the probability of getting a larger deviation than 1.27. The interpretation of this probability value of 0.105 is that the fund should be adjusted to 10.5% stocks and 89.5% cash if an unusual reaction to the rising trend occurs.

Determination of Unusual Reaction. The first step is to determine the arithmetic mean of the change in the logarithm of the monthly average during the rising phase of the current cycle. The last low was in June of 1949 when the monthly average of Standard & Poors index of industrials was 117, or 2.0682 in terms of logarithms.

The monthly averages reached the "normal" value 20 months later in January 1951, the "normal" value for 1951 being 182.6, or 2.2412 in terms of logarithms. Thus, in the 20 months from June 1949 to January 1951, there was a rise (in terms of logarithms) of 0.173, from 2.0682 to 2.2412, or 0.0086 as the rise per month.

By using the table of the Poisson distribution referred to previously (Table II, page 10, $a = 8.6$), it will be found that a monthly change of 0.022 in the logarithms has a probability of less than 0.0001. Since the antilogarithm of 0.022 is 1.052, we conclude that a 5.2% decline in the monthly averages of Standard & Poors index of industrials would constitute an unusual reaction to the present rising phase of the cycle.

Status of Formula Plan, January 1955. On the basis of the above calculations, if there is a 5.2% decline in the monthly average of common-stock prices, then stocks should be sold until the fund has 89.5% of its assets in cash. If the market rises above present levels, then the percentage in stocks would rise, and the exact percentage would have to be recomputed by using the higher level of prices. A 5.2% decline would still be the unusual reaction which would lead to selling.

Research on formula plans has led to a number of ideas, which can be classified under the headings of Desirable Characteristics of Formula Plans and Use of Formula Plans.

DESIRABLE CHARACTERISTICS OF FORMULA PLANS

1. The formula plan should not only be reasonable but should also be formulated objectively, so that it can be tested by application in the past. Testing by application in the past is not sufficient, but, if the plan does not work in the past, then serious questions can be raised about its performance in the future.

2. Statistical analysis should be used, at least to the extent of formulating the plan objectively and getting stand-

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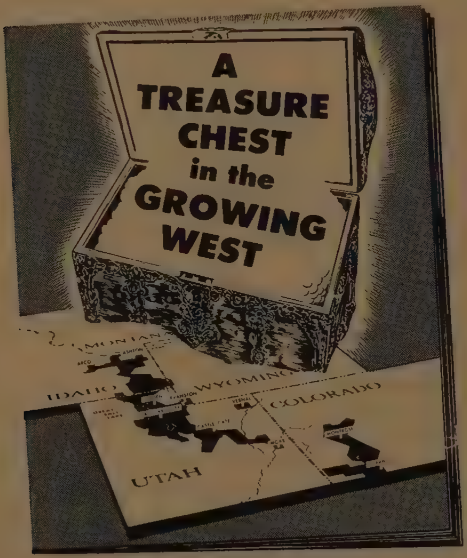
*Table II, *Poisson's Exponential Dinomial Limit,* by E. C. Molina, D. Van Nostrand Company, 1949.



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ard errors of estimate of the measures of the "normal" value and the fluctuations around the "normal."

Formula plans deal with the problem of decision making. In existing plans, the decisions are based on information contained in the past of the stock-price series.

There is no reason why other data such as dividends, earnings, and measurable economic factors could not be incorporated into the plan. Also formula plans would benefit by using some of the methods of modern statistical decision-making analysis.

3. Specific aspects of formula plans that have an important bearing on their performance are:

(a) Not selling or buying until there is an unusual reaction to the upward or downward phase of the cycle. This idea is used in my plan, but further research in this area would be very worth while.

(b) The "normal" value should not be just a straight-line trend, but should be based on an objective method which reveals changes in trend. The autoregressive method used in this article does take into account a changing trend, but it could be improved without loss of objectivity.

(c) The question whether or not the cycle is close to a turning point should be answered, by considering not only the deviation of the price level from the normal, but also the length of time that elapsed since the previous high or low. My plan does not take into account the period of the cycle, but other work that I have done indicates that the time of rising and declining phase is important.

1. Formula plans, as they have been applied, appear to be mechanical indicators of when to sell and buy stocks. Actually they could be used like "quality control methods" in the statistical control of quality of manufactured product.

From this point of view, the formula plan could be considered as a device that would indicate when unusually high or low levels of prices prevailed. At these unusual levels, action should be taken, at least to re-evaluate the investment policy and commitments. Between these unusual levels, and this would be most of the time, there would be little need for re-examination of existing investment policies.

2. Although this has not yet been done, to my knowledge, the formula plans should give valuable information about what to buy and sell, as well as when. This would be accomplished by using formula-plan analysis on individual industries and companies.

As a matter of fact, one of the main reasons why formula plans do not work as well as they should is that they are based on price series which are averages of many corporations. The variation in the trends and cyclical behavior of common stocks of individual corporations is tremendous, and the indexes merely average out the variation which the investor should be using. The formula-plan methods could be very helpful in deciding when to switch from overvalued to undervalued common stocks, where the evaluation takes into account not only the growth features but also the cyclical behavior of the security.

* * *

DETROIT DSC STEEL

1954
annual report

Copies of our 1954 Annual Report are available to interested investors, brokerage houses, banks, fiduciaries and security analysts on request to

R. A. YODER, Secretary-Treasurer
DETROIT STEEL CORPORATION
Box 4308 PORTER STATION, DETROIT 9, MICH.

CONSOLIDATED NATURAL GAS COMPANY
30 Rockefeller Plaza
New York 20, N. Y.
DIVIDEND NO. 29

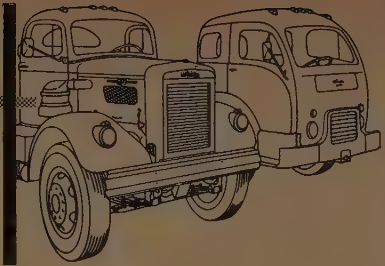
THE BOARD OF DIRECTORS has this day declared a regular quarterly cash dividend of Thirty-Seven and One Half Cents (37½¢) per share on the capital stock of the Company, payable on May 16, 1955, to stockholders of record at the close of business April 15, 1955.

R. E. PALMER, *Secretary*

March 17, 1955

The White Motor Company

Cleveland, Ohio



1954 Annual Report Highlights

	1954	1953
New vehicles sold	12,951	14,973
Net sales	$145,458,199	$167,384,914
Net income	$4,888,644	$5,015,367
Cash dividends paid on preferred stock	$445,830	$160,247*
Cash dividends paid on common stock	$2,055,476	$1,951,973
Number of shares of common stock outstanding (December 31)	827,017	782,497
Net income per share of common stock	$5.37	$6.20
Cash dividends paid per share of common stock	$2.50†	$2.50

*For the period August 25 to December 31, 1953.

†The Company also paid a 4% stock dividend.

In the closing months of last year, the demand for our commercial products turned upward. This trend continues, with January, 1955, producing a substantial increase over the volume obtained in January, 1954.

EARNINGS—The net income for 1954 compares favorably with the results obtained in the two preceding years. However, the decline in business with its attendant intensification of competition which started in the latter part of 1953 continued through most of the year 1954, resulting in the decrease in income before taxes in 1954.

DIVIDENDS—In 1954, four quarterly dividends of $.625 each per share were paid in cash on the common stock, a total of $2.50 for the year. In addition, a 4% stock dividend was distributed on January 28, 1954 to stockholders of record January 11, 1954. Four quarterly dividends of $1.3125 each per share were paid on the preferred stock in 1954.

At their meeting held February 23, 1955, the Directors declared a quarterly cash dividend of $.625 per share on the common stock, payable March 24, 1955 to stockholders of record March 10, 1955, and declared the regular quarterly dividend of $1.3125 per share on the preferred stock, payable April 1, 1955 to stockholders of record March 17, 1955.

FINANCIAL—The Company's financial position was materially improved in 1954.

Current liabilities were reduced more than $11,400,000 during the year and long-term debt over $3,700,000 during the year.

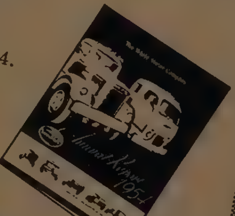
Current assets on December 31, 1954 exceeded current liabilities by more than $60,000,000, resulting in a ratio of 5.08 to 1, as compared with a ratio of 3.25 to 1 at the previous year-end.

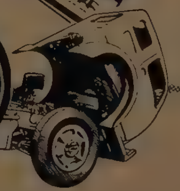
SALES—The net dollar volume of sales of all products and services for 1954 is compared with 1953:

	1954	1953	% Change
Commercial Vehicles	$ 86,830,655	$ 94,126,004	−7.8%
Commercial Parts and Labor	49,639,282	49,902,148	−.5%
Government	8,988,262	23,356,762	−61.5%
Total	$145,458,199	$167,384,914	−13.1%

1954—Year of Progress at White

WHITE'S modern line of motor trucks is matched by significant progress in all phases of the Company's operations during 1954. For a complete progress report write for a copy of the 1954 Annual Report. Address your request to: Treasurer, The White Motor Company, Cleveland 1, Ohio.





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Are Farmers Getting More Than Their Share?

FRANCIS P. COOLIDGE

THERE IS A RATHER WIDESPREAD BELIEF among financial people (we even suspect that it may prevail among security analysts) that the farmers of the United States have made a sinister use of their political influence to obtain more than their share of the products of our national economy. This opinion naturally stems from the prominence given the Government's activities in supporting prices of farm products, and the very large supplies of surplus farm products that it has acquired as the result of these activities.

The corollary of this opinion is to regard present levels of farm prices and farm income as abnormally high and, consequently, to anticipate future downward adjustments in these important economic series. If, on the other hand, the farm sector is already in reasonable balance with the rest of our economy, such expectations might well lead to unsound investment and economic decisions.

QUESTION IS VERY COMPLICATED

The question of whether farmers are getting more than their share is very complicated, and a really adequate consideration of it would involve examining many factors. However, the two most direct factors are those that I am covering in this brief article, namely: (1) the record of prices of farm products, and their relationship to the general price structure, and (2) what these farm prices have meant in terms of farm income, and the relationship of the latter to the total economy.

DOWNWARD TREND

The record shows that prices of farm products have been in a distinct downward trend for about four years, that is, since the post-Korea peak which was reached near the beginning of 1951. Based on the Bureau of Labor Statistics index of wholesale prices, the cumulative decline through January had amounted to 22%.

Actually this adjustment has moderately exceeded in severity that which had developed in the most recent previous period of declining farm prices, that is, the approximate year and a half prior to Korea. At that time, farm prices declined 20% from the high point of the postwar inflation which had been established in the summer of 1948.

THE CURRENT ADJUSTMENT

The current adjustment is also only moderately less than that shown in the only other period of declining farm prices that has occurred in the last twenty years, that is, 1937–39. In that prewar period farm prices declined 35% in a little over two years, before stabilizing and ultimately

Table 1

	Wholesale Price Indexes, 1947-49 = 100			Indexes, 1910-14 = 100		
				Prices		
Year	Farm Products	Other Commodities	% Farm of Nonfarm Products	Received by Farmers	Paid by Farmers	Parity Ratio*
1935	40	56	71	109	124	88
1936	45	57	79	114	124	92
1937	48	61	79	122	131	93
1938	38	58	66	97	124	77
1939	36	58	62	95	123	78
1940	38	59	64	100	124	81
1941	46	64	72	123	133	92
1942	59	68	101	158	152	104
1943	69	69	100	192	171	112
1944	69	70	99	196	182	108
1945	72	71	101	206	190	108
1946	83	78	106	234	208	112
1947	100	95	105	275	240	115
1948	107	103	104	285	260	110
1949	93	101	92	249	251	99
1950	97	105	92	256	256	100
1951	113	116	98	302	282	107
1952	107	113	95	288	287	100
1953	97	114	85	258	279	92
1954	96	114	84	250	281	89
1955+	92	115	80	244	283	86

*Prices received to prices paid.

+January.

Table 2
Dollars in Billions

Year	Farm Cash Income	Gross National Product	% Farm Cash Income of GNP	Farm Net Income	Total Nonagricultural Personal Income	% Farm Net Income of Nonagricultural Personal Income
1935	$ 7.65	$ 72.2	10.6	$ 4.50	$ 53.4	8.4
1936	8.63	82.5	10.5	5.06	62.8	8.1
1937	9.16	90.2	10.2	5.10	66.5	7.7
1938	8.15	84.7	9.6	4.23	62.1	6.8
1939	8.58	91.3	9.4	4.26	66.3	6.4
1940	9.06	101.4	8.9	4.30	71.5	6.0
1941	11.62	126.4	9.2	6.05	86.1	7.0
1942	16.14	161.6	10.0	8.85	109.4	8.1
1943	20.00	194.3	10.3	11.54	135.2	8.5
1944	21.15	213.7	9.9	11.97	150.5	8.0
1945	22.13	215.2	10.3	12.29	155.7	7.9
1946	25.34	211.1	12.0	14.19	158.8	8.9
1947	30.02	233.3	12.9	16.77	170.8	9.8
1948	30.46	259.0	11.8	15.60	187.1	8.3
1949	28.13	258.2	10.9	13.59	188.7	7.2
1950	28.61	286.8	10.0	12.36	209.0	5.9
1951	33.09	329.8	10.0	14.54	234.0	6.2
1952	32.97	348.0	9.5	13.63	249.9	5.5
1953	31.63	367.1	8.6	13.28	269.0	4.9
1954*	30.00	359.0	8.4	12.50	270.5	4.6

*Estimated.

rising under the stimulus of World War II. During the collapse of our economy in the great depression of the early 1930's, farm prices dropped almost 60%, but this precedent is not considered too pertinent.

FARM PRICES VERSUS PRICE STRUCTURE

Although the extent of the recent farm price adjustment is important, and the comparison with the other two periods of farm weakness is significant, still more pertinent is the trend of farm prices versus the general price structure. This underscores the extent of the recent farm adjustment in that, while farm prices have been declining 22% in the last four years, the average wholesale price of all nonfarm commodities has declined scarcely at all, has in fact actually tilted upward slightly throughout the last two years.

When we go back to the two previous periods of declining prices, we find that, on a relative basis, the recent adjustment in farm prices has been fully as great. In 1948–49, the 20% decline in farm prices compared with 2% in nonfarm. Going still farther back to prewar 1937–39, we find that the 35% decline in farm prices compared with 14% in nonfarm.

FARM PRICE AND NONFARM INDEXES

Perhaps our perspective on the present position of farm prices will be improved if we look at the annual ratio of the wholesale farm price index versus the nonfarm index. This shows that farm prices now represent 80% of nonfarm prices, which is a substantial 17% decline from the 96% average for the entire postwar period, and 19% from the post-Korea year of 1951.

It is 25% below the 106% in the peak year of 1946, and represents a 20% decline from the wartime average of 100%. One must go clear back to before the war to find a lower ratio for farm products, which then (1936–41) averaged 70% of nonfarm prices.

It is also worth while to examine the farm-price picture as shown by the other official Government series, the Department of Agriculture averages of prices received by farmers and prices paid by farmers. These series not only are well known but also are formally recognized in the legislation dealing with Government support of prices of farm products, and it is their relationship that yields the so-called parity ratio. This parity ratio measures the relationship of average prices received by farmers to the average of prices paid by farmers for goods and services they use in family living and for production, including interest, taxes, and wages, all based on the pre- World War I = 100.

TWO SIGNIFICANT DIFFERENCES

Though prices farmers receive correlate closely with the wholesale price index of farm products, as would be expected, two significant differences between prices paid by farmers and the wholesale price trends of nonfarm products previously discussed should be noted. First the index of prices paid by farmers includes wages, which have risen much more rapidly than commodity prices. As a result the prices-paid index has had a greater rise since prewar (+123%) than wholesale prices of nonfarm products (+93%), although, in terms of the parity ratio, this relative gain has been modified somewhat by the second difference in the two series, namely: The prices-paid index includes some farm products (feed, seed, and the like), which has tended to pull it down in comparison with nonfarm wholesale prices.

These differences have resulted, over a period of years, in lowering the Department of Agriculture parity ratio, compared to the wholesale price ratio, but the pattern is generally similar. This parity ratio has also been declining for four years now, and in January 1955 stood 20% under the average for the post-Korea high year of 1951, and 24% below the peak month in that year (February). The current parity ratio is 17% below the average for the entire postwar period, 25% below the postwar high year of 1947, and 20% below the average for the war years. In fact, the present parity ratio represents the complete wiping out of the important gains in the war and early postwar years, and a return to the prewar average level.

SIGNIFICANT DOWNWARD ADJUSTMENT

To summarize, it is evident, no matter how you look at it, that prices of farm products have undergone a significant downward adjustment over the past four years. This decline has brought the relationship of wholesale prices of farm products to other commodities to a point 17% below the postwar average, and the low since before World War II.

ANOTHER MEASURE

Another measure, the parity ratio of farm prices received to prices paid, shows the same 17% decline versus the postwar average. It differs from the wholesale price comparison only in that it represents a return all the way to the prewar level, while the wholesale price relationship is still 14% above prewar. Table 1 gives, for the last twenty years, the price data just discussed.

THE SECOND APPROACH

If we turn now to the second approach to an appraisal of the farmer's relative position in the economy, that is, consideration of what the trends of farm prices have meant to farm income, the same picture of very significant declines is evident. In 1954, farm cash income (total cash receipts to farmers from marketings of farm products plus Government benefit payments, the latter relatively very small) of approximately $30 billion established the third consecutive decline, and was almost 16% below the 1951 high of $33.1 billion.

The significance of this farm adjustment appears when it is contrasted to the gains in a broad measure of our total economy such as gross national product. The 1954 farm cash income was equivalent to only 8.4% of gross national product, having declined for seven consecutive years from a high of 12.9% in 1947.

This current 8.4% ratio to gross national product is very substantially below the postwar average of 10.5%, the wartime average of 10.1%, and the prewar average of 9.7%. In fact, the only time that farm cash income had a lower ratio to the GNP was in 1932, at the bottom of the disastrous deflation of the early 1930's.

FARM NET INCOME

Farm net income (cash income plus nonmoney income less production expenses) has shown an even greater deflation for the farmers than their cash income. Net income has declined for three consecutive years to about $12.5 billion in 1954, 14% below 1951, and, reflecting the previously discussed adverse relative trends for farm prices, this 1954 net income was 25% below the all-time high of $16.8 billion in 1947, when farm prices were at their most favorable point.

RATIO OF ONLY 4.6%

In comparison with the nonfarm segment of the economy, as measured by total nonagricultural personal income, farm net income represented a ratio of only 4.6% in 1954 versus 6.2% in 1951, and was less than half the 9.8% peak in 1947. This 4.6% also compares with a postwar average of 6.8%, 8.1% during the war and 7.0% prewar.

As with the cash income ratio, 1932 is the only year to show a lower relationship than currently prevails. These trends in farm cash and net income and their relationships to gross national product and personal nonagricultural income are shown in Table 2.

CONCLUSION

In concluding, while admitting only a partial coverage of a complex subject, I submit that the adjustments in the U. S. agriculture during the last four years have established what appear to be rather conservative price and income relationships.

INTERNATIONAL HARVESTER COMPANY

The Directors of International Harvester Company have declared quarterly dividend No. 146 of one dollar and seventy-five cents ($1.75) per share on the preferred stock payable March 1, 1955, to stockholders of record at the close of business on February 4, 1955.

GERARD J. EGER, Secretary

ROME CABLE Corporation
ROME · NEW YORK

64th Consecutive Dividend

The Board of Directors of Rome Cable Corporation has declared consecutive Dividend No. 64 for 35 cents per share on the Common Capital Stock of the Corporation, payable March 31, 1955, to holders of record at the close of business on March 10, 1955.

GERARD A. WEISS, Secretary
Rome, N. Y., February 25, 1955

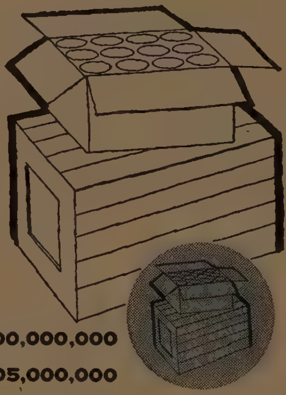
SOUTHERN NATURAL GAS COMPANY REPORTS FOR 1954

In 25 years much has been added....*in The INDUSTRIAL SOUTHEAST*

to the resources of industry in Mississippi, Alabama, Georgia, and South Carolina . . . and to the capacity of Southern Natural Gas, serving the industry of these states.

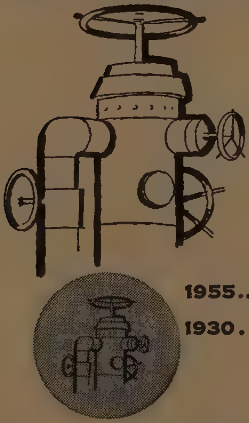
NUMBER OF INDUSTRIAL WAGE EARNERS IN THE SOUTHEAST

1955 . . 875,000
1930 375,000



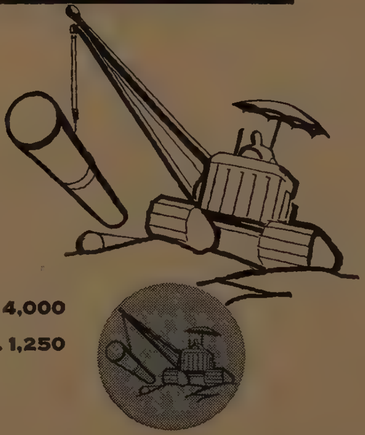
VALUE OF THE SOUTHEAST'S MANUFACTURED PRODUCTS

1955 . . $11,000,000,000
1930 . . . $1,405,000,000



GAS DELIVERY CAPACITY OF SOUTHERN NATURAL GAS COMPANY (IN CUBIC FEET PER DAY)

1955...925,000,000
1930...109,000,000



MILES OF PIPELINE OWNED BY SOUTHERN NATURAL GAS COMPANY

1955 . . . 4,000
1930 1,250

AT SOUTHERN NATURAL GAS COMPANY Since 1930, when our predecessor company began operations, we have grown steadily with the expanding Industrial Southeast.

AND SINCE LAST YEAR . . .

	Sales of Gas (in cubic feet)	Revenues	Net Income	Income Per Share*	Dividends Paid	Dividends Per Share*
1954	245 billion	$59,110,525	$6,497,643	$1.89	$5,321,472	$1.55
1953	217 billion	$48,329,135	$7,036,615	$2.06	$4,790,707	$1.40

* Number of shares outstanding: 1954 3,445,004 1953 3,422,102

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SOUTHERN NATURAL GAS COMPANY
WATTS BUILDING, BIRMINGHAM, ALABAMA

SOUTHERN NATURAL GAS COMPANY

Method of Estimating or Forecasting Textile Earnings Using Mill Margins

JOHN KURIE

As they say: "You don't always have to be a hen to tell if an egg is good." In the same sense, a security analyst, called upon to evaluate textile securities, has outside data available (the mill margin) that will help in estimating the "goodness of the egg."

The United States Department of Agriculture has gone to a great deal of trouble to develop this index of the net difference between the cost of the raw cotton going into the cotton mill and the price received for the greige fabric sold by the mill. The index covers 17 major constructions of fabrics and the prices of the cotton used in each kind of cloth.

It is adjusted for the amount of waste and corrected for the salable waste. In other words, this mill-margin index is equal to the net price received for the cloth, obtainable from a pound of cotton, less the cost of the cotton.

HOW MARGINS ARE DERIVED

Figure 1 shows graphically how the mill margins are derived. The lower line (raw cotton price) is the average cost of the different qualities of cotton used in the fabrics represented in the index. The upper line is the average paid for the 17 different constructions of cloth. The shaded area between the two lines represents the cotton mill margin. As has been indicated, the basic unit is in terms of a pound of cotton and the amount of cloth that can be woven from it.

Obviously, changes in textile income will agree closely with changes in the cotton mill margins. Some differences occur because of the profits and losses in inventories of cotton and finished goods. In addition, there appears to be a slight tendency for the cotton mill margin to anticipate changes in textile manufacturers' profits by from two to four months in some instances (Figure 2).

Generally speaking, the two series can be satisfactorily fitted and the mill margin used as a current indicator of textile earnings. In Figure 3, this fit has been accomplished by reading from a line drawn through a scatter diagram of the two variables. It is evident that the calculated income line (the line with the circles) always tends to lead the actual income line by one or more months. The charts shown here are drawn on a quarterly basis. A monthly series would show the exact amount of lead more clearly.

THE NET INCOME SERIES

The net income series shown is based on the Federal Trade Commission and the Securities & Exchange Commission Quarterly Financial Report Series and represents the profits per dollar of sales.

In order to put the mill margin to use in estimating the earnings of an *individual* company, the following procedure is suggested:

1. Plot the quarterly operating earnings of the company under consideration on the same chart with the mill-margin index.

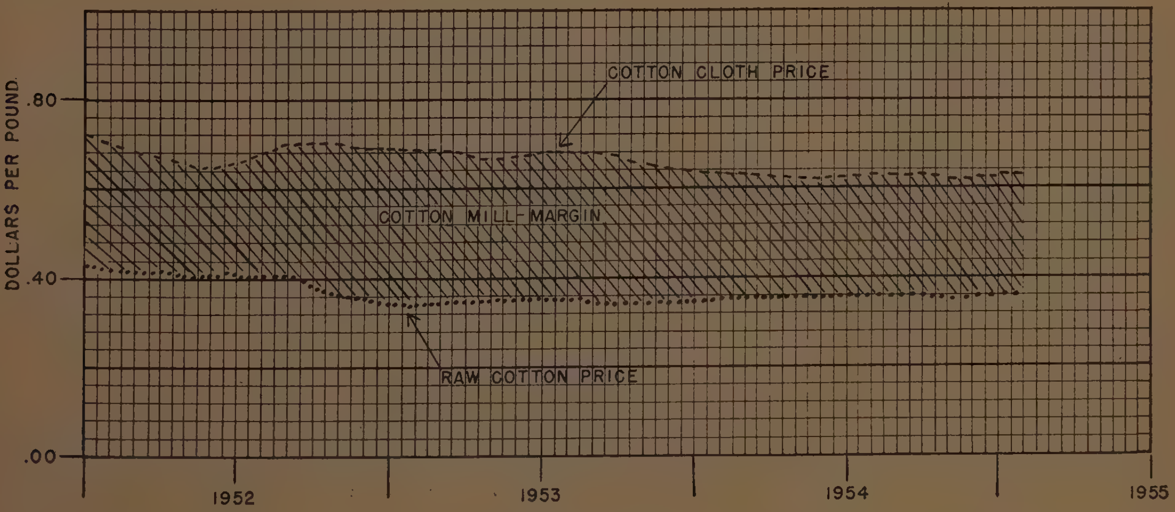

Figure 1. Mill Margins

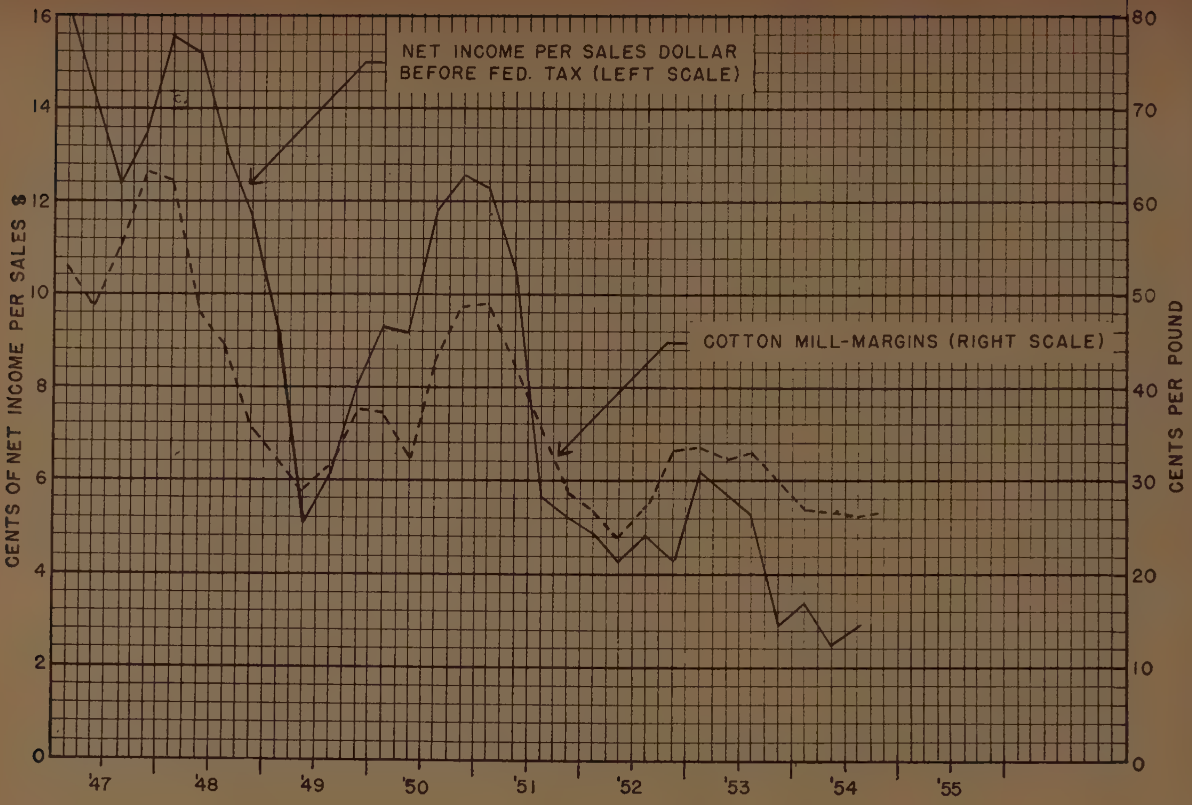

Figure 2 (above). Cotton Mill Margins and Textile Manufacturers' Profits

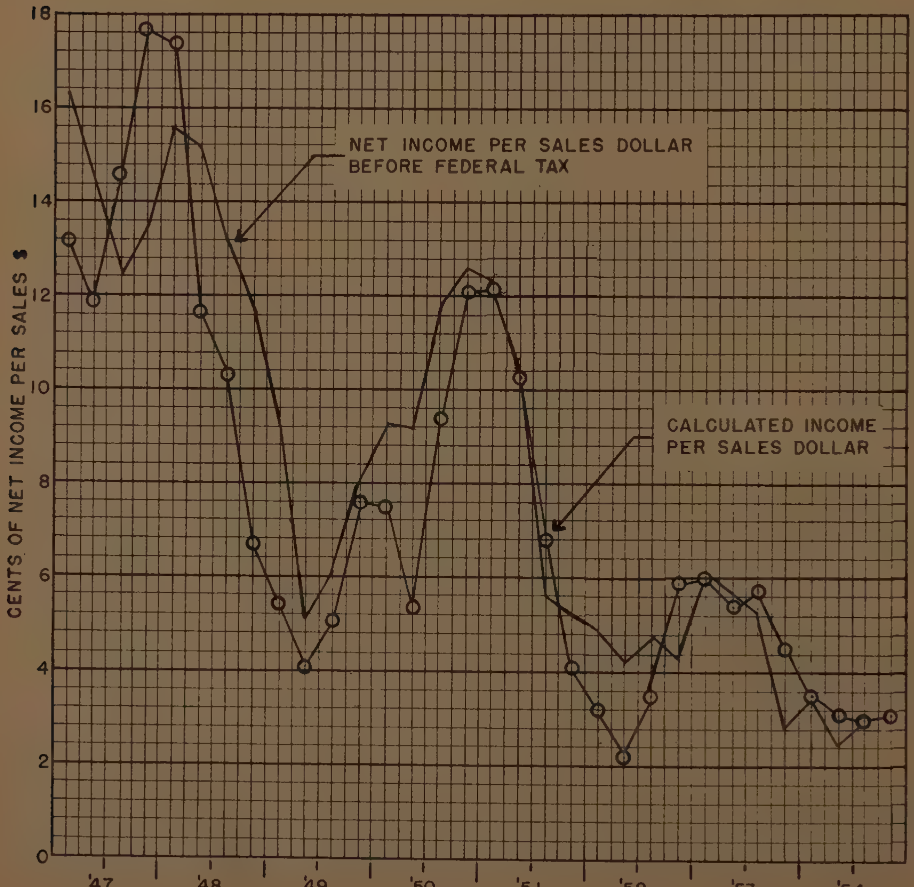

Figure 3 (left). Textile Manufacturers' Profits (Actual and Calculated) from Mill Margins

2. If there appears to be a good correlation, the next step is to run a scatter diagram or other simple correlation between the two series in order to arrive at a "calculated" earnings series.

3. Your calculated earnings series should next be plotted against actual earnings in order to obtain a working understanding of the degree of accuracy that can be expected from the forecast.

4. Using your own estimates of future raw cotton prices, and so on, you may estimate the future mill margin. Since cotton prices move slowly, it is possible to project the current trend with reasonable safety.

5. From your forecast of mill margins, it is possible (using your fitted line equation for calculating earnings from mill margins) to arrive at a calculated future earnings picture for the textile company under consideration. Remember that adjustments must be made for inventory profits and losses where information is available.

FACTORS OUTSIDE MILL CONTROL

Examination of these charts makes obvious the fact that textile mills' earnings in the past have been influenced very substantially by factors outside the individual mill's control. The recent movement to combine the major mills should accomplish a substantial improvement in this situation.

Through better control of production in times of low demand and by selling finished and styled fabrics instead of greige fabrics, they may be able to accomplish the important task of moving upward the prices received for fabric. This would achieve an obvious and immediate advantage in terms of mill margins and earnings.

A SERIOUS EVALUATION

A serious evaluation of an individual company's earnings prospects should of course include a knowledge of its relative operating efficiency in terms of equipment and company policy. In addition, it should include an appraisal of the fabric design and styling staff (if it sells finished fabrics to the cutters). Company attitudes toward the relatively high-margin synthetics should also be considered.

The mill-margin reports mentioned in this article may be obtained through the U. S. Department of Agriculture, Production and Marketing Administration, cotton branch, in Washington, D. C. They are prepared by the Agricultural Marketing Service, marketing information section, cotton division, Post Office Box 8074, Crosstown Station, Memphis 4, Tennessee.

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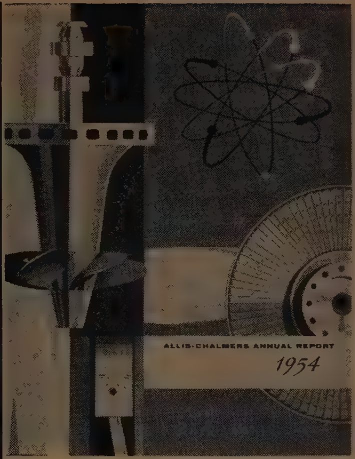

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ALLIS-CHALMERS HIGHLIGHTS

	1954	1953
Sales and Other Income	$495,310,486	$516,574,615
All Taxes	32,986,891	29,807,177
Earnings	26,130,430	21,943,569
Per Share of Common Stock . .	7.20	6.58
Dividends Paid to Owners of Common Stock	13,421,584	12,403,690
Per Share	4.00	4.00
Shares of Outstanding Common Stock	3,475,377	3,267,209
Earnings Retained for Use in the Business	11,488,809	9,088,998
Number of Employes	33,865	36,697
Wages and Salaries	157,121,943	155,761,969
Owners of Common Stock	35,465	33,029
Book Value per Share of Common Stock	68.18	65.59
Total Share Owners' Investment . .	273,086,827	226,354,685
Working Capital	263,751,912	207,958,585
Total Assets	410,575,188	401,503,323

CHIEF PRODUCTS

Tractor Division:

Farm and Industrial Wheel Tractors, Harvesters, Farm Equipment, Crawler Tractors, Motor Graders, Motor Scrapers, Motor Wagons, Pull-Type Scrapers, Power Units, Engines.

General Machinery Division:

Steam, Hydraulic, Marine and Gas Turbines; Electric Generators, Motors, Controls; Transformers, Switchgear, Regulators; Steam Condensers; Pumps; Blowers; Crushers; Cement Kilns; Mining and Processing Machinery; Foundry Equipment; Betatrons; Nuclear Power Equipment.

Buda Division:

Fork Lift Trucks; Towing Tractors; Diesel, Natural Gas, Butane and Gasoline Engines; Earth Boring Machines; Railroad Supplies; Jacks.

PLANTS

West Allis, Wis.; Springfield, Ill.; Harvey, Ill.; LaCrosse, Wis.; Terre Haute, Ind.; Cedar Rapids, Iowa; Norwood, Ohio; LaPorte, Ind.; Pittsburgh, Pa.; Boston, Mass.; Gadsden, Ala.; Oxnard, Calif.; Independence, Mo.

Foreign: Essendine, England; Lachine, Quebec; St. Thomas, Ontario.

ALLIS-CHALMERS

Depreciation Policies and Earning Power

DOUGLAS A. HAYES

SINCE WORLD WAR II there have been two distinct schools of thought on the subject of depreciation accruals as related to the determination of earning power. Immediately after the war, but persisting until this day, a number of articles were published which held, in effect, that depreciation charges as an economic cost were being grossly understated because of certain inherent limitations of conventional accounting practices. As a result, it was argued that "true" earnings were materially less than indicated by income statements prepared in accordance with established accounting conventions.

A second school of thought, which has come into vogue more recently, has taken a diametrically opposed position: Depreciation charges are in many cases being substantially overstated, owing both to certain policy decisions on the part of management and to provisions that have been incorporated into the income-tax statutes. In consequence, "true" earnings are alleged to be significantly greater than indicated by the income statements submitted to stockholders.*

DIVISION OF OPINION

Although a critical evaluation of reported earnings, with a view to appraising the relevance of such earnings to the future performance of the company, is to be encouraged in analysis work, many investors, and perhaps even some security analysts, might be justifiably perplexed by this division of opinion on the subject of depreciation. About the only point on which the "experts" seem to agree is that reported depreciation expense is wrong, and some judicious tinkering with the earnings figures is thereby required.

The objective, of course, is to obtain a more penetrating insight into corporate prospects. Our objective in this article is to consider some of the developments that have taken place in this area, with the hope that such a discussion might contribute to stimulating additional thought on this subject by practicing security analysts.

DEPRECIATION: ACCOUNTANT VERSUS INVESTOR

As a background, it might be helpful to review briefly the traditional principles that have guided accountants in the determination of depreciation and related expenses, and to compare these concepts with the economic nature of depreciation from the investor's standpoint. Conventional accounting theory regards depreciation as the systematic allocation of the dollar cost of plant and equipment to the revenue stream in some logical manner.

In general, the principle has been accepted that every year that is likely to benefit from the productive use of a given asset should have part of its cost allocated to that year. To the orthodox accountant, therefore, the major problem involved in the determination of depreciation is the calculation of estimated useful life, which, in turn, determines what is conventionally termed the rate of depreciation.

THE STRAIGHT-LINE BASIS

Thus, if an asset group is estimated to have an economic life span of ten years, the depreciation rate becomes 10% per year on the straight-line basis. Minor problems are presented with respect to the determination of asset cost, but, on the whole, these are not of great quantitative significance.

To the owners of a business entity, however, depreciation can be viewed as the process of recognizing the gradual consumption of the real capital, represented by plant and equipment, and the means whereby the integrity of the owners' investment is maintained intact. Thus, the investor may logically view depreciation expense as the allocation of revenues, in a sufficient amount to allow for adequate replacements of capital assets, on the assumption that the firm must maintain its productive capacities intact over the indefinite future, or else a gradual erosion of the business will result.

Though all this might be acceptable theory, its translation into a practical evaluation of the adequacy of yearly depreciation charges is exceedingly difficult in practice. An intelligent appraisal of the yearly depreciation deduction, with the "productive capacity" objective in mind, would require considerable technical knowledge of the relative current costs of various capital assets, their productivity, relative obsolescence, and similar factors. The consequence of the inherent inability of the outside analyst to appraise the real adequacy of depreciation expense has been that the accountant's computation of depreciation charges is usually presumed correct unless there are clear indications that either economic circumstances or improper policies have resulted in a gross distortion of reported income.

BURDEN OF PROOF

Therefore, in order to justify any considerable analytical effort in this area, the burden of proof has always been on the analyst, to show both of the following points: (1) why the amounts shown for this expense on the income

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*It is interesting to note that, in THE ANALYSTS JOURNAL for November 1954, both sides of this question were represented, either directly or by implication. F. A. Reece in his article entitled "Where Is the Country's Manufacturing Plant Headed?" and S. A. Tesoriere's "Problematical Profits" both took the position that earnings are being significantly overstated because of inadequate depreciation charges. On the other other side, R. N. Litts in "Another Interesting Tool for Stock Appraisal" implies that investors should be primarily interested in cash earnings, exclusive of depreciation. In fairness to Mr. Litts, we should point out that the use of cash income as an investment concept is qualified by observing that its "availability" should also be considered.

Table 1. Earnings and Depreciation Data
U. S. Steel Corporation
Thousands Omitted

	1948	1949	1950	1951	1952	1953
Depreciation Expenses						
Conventional	$ 90,652	$ 97,616	$108,421	$108,930	$109,061	$132,899
Accelerated						
Per special policy	55,335	22,046	35,518	40,366	21,638	0
Tax amortization	0	0	0	12,795	46,220	105,138
Net Income						
As reported	129,628	165,909	215,464	184,360	143,688	222,088
Before acceleration	184,963	187,955	250,982	237,521	211,545	327,226

statement are not reasonably related to depreciation from the investors point of view and (2) that the indicated earning power would be substantially changed by a review and adjustment of this expense item. It is suggested that these points are still pertinent to any investigation in this area. In short, broad generalities on this subject should be avoided, and investors and analysts might be advised to maintain a sense of perspective when considering individual situations.

However, as a result of the inflation incident to World War II, there seemed to be a rather general feeling in financial circles that the traditional accounting method of basing depreciation on the historical cost of long-lived assets had the effect of understating this cost by a significant amount. It was also alleged that the corollary overstatement of earnings for tax purposes, coupled with the high rate of such taxes, might prove to be disastrous to investors.

For example, *Barron's* published a whole series of articles on this subject in 1947 by Arundel Cotter and others.† The general tenor of the argument at this point is well known. It is based on the observation that depreciation deductions computed from historical costs would be insufficient to provide for the ultimate replacement of existing fixed assets at inflated price levels. Therefore, merely to maintain productive capacities at the same relative level would require substantial additional outlays at the time it was necessary to replace assets acquired before World War II.

TWO OBSERVATIONS WARRANTED

Though the logic of this viewpoint seems entirely sound in principle, two observations concerning its application to the early postwar years seem warranted. First, the sigficance of this matter to corporations and investors seems to have been somewhat exaggerated. We find, for example, the following statement in Cotter's article: "Assuming that replacement costs remain at their current high level, any corporation that allows for depreciation only on the basis of original cost of twenty or forty years ago is inviting eventual bankruptcy." Notice that reference is made to "any" corporation and to "bankruptcy."

In many instances, especially in the consumer goods area, fixed assets may be small in comparison with sales revenues and earnings; depreciation, in short, is sometimes a relatively minor item of expense which, even if recognized on the basis of replacement costs, would not greatly alter the amount of net income. Moreover, the dire prophecy of bankruptcy hardly seemed justified, in view of the record levels of production and sales that were unfolding at that time.

SECOND CONSEQUENCE IGNORED

This second consequence of inflation was generally ignored: a most favorable outlook for volume production at rising prices. Under such conditions, it may also have been reasonable to presume earnings levels sufficient to provide for replacement of fixed assets, assuming reasonable prudence on the part of management with respect to dividend distributions.

APPARENT INADEQUACY OF DEPRECIATION EXPENSE

Second, the apparent inadequacy of depreciation expense, based on historical costs, was almost universally regarded as a factor that should limit the value of common stocks, on the grounds that real earning power was substantially less than indicated by the accounting reports. However, as Graham and Dodd have pointed out, it is somewhat paradoxical to maintain that the real values of corporate assets are substantially greater than indicated on the balance sheet, because of higher price levels, and at the same time to conclude that the worth of the common-stock equity in such assets is substantially reduced as a result of this fact.‡

MARKET PRICES FOR HEAVY-INDUSTRY SHARES

Certainly some significance might have been attached to the fact that the market prices for many heavy-industry shares, such as steel, were well below book values, which in turn were well below their supposed economic values, as evidenced by replacement costs. There is, of course, a vital theoretical distinction between replacement cost and economic values. However, under general inflationary conditions when firm prices for end products seem assured and sales are only limited by capacity to produce, this distinction is mostly eliminated as a practical matter. Therefore, the implication that common-stock values should be regarded with suspicion because replacement

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†Arundel Cotter, "Phanton Profits Worry Foresighted Managements," *Barron's*, August 11, 1947, page 7. Comments on this subject can also be found in the *Barron's* issues of March 31, 1947, page 25; April 28, 1947, page 31; and June 16, 1947.

‡Graham and Dodd, *Security Analysis*, 3d edition, page 129, McGraw-Hill, New York, 1951.

Table 2. Asset Cost: $1,000 Estimated Life: 5 Years

Double-Declining-Balance Method

Rate = 2 times straight-line rate = 40%

Base = net book value in each year

	Year 1	Year 2	Year 3	Year 4	Year 5	Remainder
Depreciation charge	400	240	144	86.40	51.84	77.76

Sum-of-the-Digits Method

Rate = 1 + 2 + 3 + 4 + 5 = 15

Then 5/15, 4/15, 3/15, 2/15, 1/15 = rate for each respective year

Base = gross book value in all years

	Year 1	Year 2	Year 3	Year 4	Year 5	Remainder
Depreciation charge	333.33	266.67	200.00	133.33	66.67	0

costs exceeded book values seems to have been a somewhat oversimplified conclusion.

POSTWAR DEVELOPMENTS IN ACCOUNTING PRACTICES

With this subject receiving so much attention in various accounting and financial publications, it was only natural that corporate managements began to feel somewhat uneasy about the accuracy of their reported profits. The problem seemed simple enough in theory, but the various alternatives suggested for its solution were by no means simple and straightforward.

RELUCTANCE TO REVALUE FIXED ASSETS

Perhaps because of the unfavorable repercussions following the "write-ups" of assets during the '20's, there was a general reluctance in the postwar years to revalue fixed assets at the new cost levels, and thence determine depreciation expense on the basis of these greater balance-sheet values. In many respects, this reluctance was and is unfortunate, because, if the problem is defined in terms of recognizing depreciation in an amount sufficient to maintain productive capacities intact, then it would naturally follow that existing capacities should be adjusted to the new cost levels. And a careful revaluation results in bringing out both important investment aspects accruing from a major shift in the price level: the greater current worth of assets acquired at lower cost levels, and also the desirability of increasing the charges to the income stream for depreciation, in order to prevent the attrition of the firm's real capital.

ACCELERATED DEPRECIATION POLICIES

As a makeshift measure, some important corporations adopted various types of accelerated depreciation policies. Via this means, it was possible to increase the yearly depreciation deduction beyond the conventional amounts, and yet retain historical costs for balance-sheet purposes. Because recognized accounting practices seemed to be irrevocably committed to historical cost valuations, it seemed to be the only practical solution to the problem.

In many respects, however, accelerated depreciation tended to compound the confusion, because it sought to remedy an inadequate depreciation *base* by increasing the *rate* of depreciation, although the economic life span of the assets, which ordinarily determines the rate of write-off, had not been reduced per se by the shift in the price level. Moreover, in some instances, notably American Viscose and U. S. Steel, the situation was further complicated by relating the acceleration rate to the level of physical operations.

More specifically, in 1948, U. S. Steel announced that an additional 20% of the cost of newly acquired assets was to be charged off in the first two years after acquisition, but only if the company operated throughout a given year at a relatively high percentage of capacity. As the rate of operations declined, the "acceleration" rate was to be gradually scaled down.

It was stated that, at a production level of 70% of capacity or less, no accelerated depreciation was to be charged against earnings.[§] The subsequent effects are indicated by Table 1. In summary, between 1948 and 1950, inclusive additional charges pursuant to this policy reduced reported earnings by percentages varying from 30% in 1948 to about 12% in 1949.

SPECIAL TAX-AMORTIZATION PROVISION

Then, after the outbreak of hostilities in Korea, the depreciation situation was further complicated by the special tax-amortization provision attached to the internal revenue code. As is well known, certifications for rapid amortization have been granted quite freely to a number of corporations, on the theory that the assets concerned need not be solely designed to produce military products, but only reasonably related to the defense program. Thus assets adding to the basic capacities of the heavy industries have been regarded as sufficiently so related to warrant the special amortization privilege.

STRICTLY A CREATURE OF CONGRESS

This tax allowance was strictly a creature of Congress, to encourage expansion in the heavy industries as a matter of national policy. It had absolutely no necessary relation to the estimated useful life of the assets concerned. Logically, therefore, such amortization charges should not determine the amount of depreciation shown on the income statement submitted to stockholders.

[§] U. S. Steel Corporation annual report for year 1948.

In this connection, a number of authorities in the accounting profession have held that tax considerations of this kind should not control the principles on which the regular statements are constructed. Although recently there has been a tendency for a few companies to accede to this point of view, Jones & Laughlin and Aluminum Limited for example, on the whole it still seems safe to generalize that published income statements typically show the special tax amortization as an undistinguished part of ordinary depreciation deductions.

Just why many companies have been reluctant to maintain a consistent depreciation policy on all their plant assets in their reports to stockholders is a matter of conjecture. Perhaps because conventional depreciation rates have been limited by the tax statutes in the past, and conformity with the tax regulations may have become almost traditional. Again there may be some feeling that charging the maximum statutory allowances is a more "conservative" practice.

RETAIN SUBSTANTIAL PROPORTION OF EARNINGS

In some cases financial needs may indicate the desirability of retaining a substantial proportion of earnings, and thus policies resulting in a conservative earnings figure might be favored, to avoid stockholder dissatisfaction. But, whatever the reason, it is quite clear that amortization under certificates of necessity is being confused with depreciation as an economic cost of business operations, and, in this respect, many reports to stockholders seem seriously deficient in theory and practice.

Finally, from a long-term point of view, certain changes in the corporate income-tax code in 1954 may prove to be of even more significance in causing inconsistencies in accounting practices with respect to depreciation. Pursuant to this statute, companies will be allowed to adopt either of two rather complicated procedures, to compute depreciation for tax purposes.

TWO METHODS

They are both optional and can be used against any type of depreciable asset hereafter acquired. Because certain immediate tax advantages are implied, relatively widespread adoption would seem to be a reasonable prognosis.

One is known as the "double-declining-balance" method and the other goes by the rather ingenious description of "sum of the digits." These methods are not new in concept, but, until the revision of the tax code in 1954, there has never been any particular incentive for corporations to adopt them in practice.

Table 2 shows their application to a hypothetical asset with a life expectancy of five years. Both methods result in a substantial write-off of the cost of plant assets in the early years of use.

This is achieved by applying a relatively high rate to the net book value of the assets in one instance and by applying a declining rate to a constant base in the other. Under the "double-declining-balance" method, it is interesting to note that a moderate "tail-end" book value remains at the end of estimated useful life; in fact, the net book value will never become absolutely zero in theory, but, as companies have the option of changing to the straight-line method on such assets at any time, this is not a practical drawback.

But the differences in procedural technique are really unimportant; what is significant is that, for the first time, certain types of "acceleration" have the sanction of law.

There is, however, a vital difference between these recently approved methods and those that were introduced in the early postwar years by U. S. Steel and others.

Under the tax-approved methods, estimated useful life remains in control of the write-off period; therefore these methods are in theoretical accord with the principle that the productive life of an asset should govern the write-off period. The greater charges in the earlier years can be based on the theory that the relative contribution of plant assets to the revenue stream tends to be greater in the early years and to diminish thereafter (relative to new equipment), because of the obsolescence factor.

Thus it is possible to make a case that these methods are grounded in a reasonable economic concept, and are thus in accord with the objective of conventional accounting theory: a systematic allocation of costs to the revenue stream. In contrast, special tax amortization, under certificates of necessity, is obviously not a function of estimated useful life, and, on the surface at least, the various acceleration schemes of the early postwar periods seemed to have no particular relationship to conventional concepts of depreciation.

FINANCIAL IMPLICATIONS

Until recent years, when the tax-amortization allowances made acceleration more general, there was surprisingly little reaction to these practices on the part of financial analysts. Some tentative comments on their economic and financial implications may, therefore, be appropriate.

First, the early postwar type of acceleration schemes were, in essence, nothing more than arbitrary innovations of management, and as such were presumably subject to review at any time. They were designed to meet special problems which seem critical at a particular time, and they were not anchored to a general economic concept. Thus, in the instances where they were adopted, analysts could justifiably have less confidence in a consistent policy of expense determination, which is requisite to the comparability of earnings through time.

In the second place, it is interesting to observe that accelerated depreciation tends to aggravate the presumed understatement of asset values on the balance sheet. The charging off of a significant proportion of asset costs in the early years of use, in effect, resembles the downward revaluations of fixed assets, which were quite popular during the depression.

DIFFERENT REASON AND METHOD

There is today, of course, quite a different reason and a different method. Then the problem was viewed as a means of bringing asset values more in accord with the lower replacement costs prevailing under depression conditions, whereas, in recent years, the writedowns were undertaken for the precise opposite reason: a higher level of replacement costs. And, of course, the revaluations of the '30's were generally made against accumulated surplus of one kind or another, whereas accelerated depreciation has involved a write-off of the assets against earnings.

In the third place, total depreciation charges on each specific group of assets, including those acquired at pre-war cost levels, are no greater under an acceleration policy than under conventional policy. Historical cost is still the value base which conditions the total depreciation expense allowed on any asset.

In this respect, we might parenthetically note that "acceleration" is not meeting the fundamental objection of some accounting theorists to the orthodox approach: namely, that depreciation expense as an economic cost should be based on the effective purchasing power committed to fixed assets, in terms of dollars of reasonably constant value. Therefore, it is not strictly correct to consider acceleration as synonymous with depreciation on a replacement-cost basis.

THE IMMEDIATE CONSEQUENCES

But, fourth, the immediate consequences of acceleration policies are an increase in the depreciation deduction on the income statement, and, in that respect, reported net income may be viewed as more nearly determined in accord with the replacement-cost concept of depreciation. However, if the plant account remains relatively static, this effect will ultimately wear off, and then companies will be obliged to report a depreciation deduction smaller than that which would have resulted from a conventional basis. The laws of mathematics on this point are inexorable: If a given amount (historical cost) is to be written off, and a larger proportion of this sum is charged off in the earlier years of use, then the later years will bear a correspondingly lesser burden of this cost.

But, because plant accounts have not remained static, this tendency has been consistently obscured, and the apparent consequences seem to be indefinitely postponed. Indeed, during recent years, which have been notable for large-scale plant expenditures, it has appeared that the various acceleration methods result in constantly increasing yearly charges for depreciation expense, instead of the reverse. Our data on Big Steel shown in Table 1 may be offered as evidence tending to confirm this observation.

Ultimately, however, it would seem inevitable that lower than normal depreciation charges on assets subjected to acceleration in prior years will more than offset the higher accruals on assets recently acquired. Thus, over a long period of time, the amount of earnings reported under a policy of accelerated depreciation may not be significantly different from what would result under the conventional straight-line method. The retention of historical cost as the depreciable value base is the essential cause of this long-term result.

ANALYTICAL SIGNIFICANCE

This is not to say that these developments in depreciation policies have no analytical significance. Their principal impact, under certain logical assumptions, may prove to be on the relative stability of the earnings pattern. All forms of acceleration, but especially the recently tax-approved "double-declining-balance" and "sum-of-the-digits" methods, should tend to take the peaks off earnings, and, to a lesser extent, may fill in the valleys.

OUR MAIN ASSUMPTION

Our main assumption, on which this forecast is based, is that large plant expenditures will be irregular and will tend to be concentrated during periods of favorable business conditions. Historically this assumption seems valid, but, in recent years, there seems to be some indication that plant-expansion programs are being made on a "long-range" basis and are less upset by current business developments.

NO REAL TEST TO DATE

However, there has been no real test to date of whether a serious business setback would lead to widespread cancelation of many of these "long-range" plans. Until more definite proof to the contrary appears, we believe that the general assumption made here is still the most realistic.

The stabilizing effects would naturally follow under this assumption. Depreciation accruals tend to be much greater under the various acceleration methods, compared to the conventional straight-line method, in the years immediately following the completion of expansion programs, and smaller at other times. If favorable business conditions tend to coincide more or less with heavy plant expenditures, and recessions tend to occur with a lag after completion, then the size of the depreciation deduction might well vary directly with the size of the revenue stream, although a precise relationship cannot be expected. Because, under the "double-declining-balance" and "sum-of-the-digits" methods, there is a relatively rapid decline in yearly depreciation charges on a given asset structure, the stabilizing influences might be even more pronounced than under a straight-line accelerated amortization policy with equal charges for several years.

To some extent, these recent developments in depreciation policies seem to be roughly comparable to the use of inventory reserves for future price declines: When inventories are increasing, both in physical and in price terms, part of the increased costs are charged off immediately, and the subsequent income stream is relieved of its proportionate share of such costs. But the relationship between plant use and depreciation expense is a little less direct, owing to the obsolescence factor, than it is between materials consumed and revenues derived from the sale of products.

MANIPULATION OF INVENTORY RESERVES

Also the manipulation of inventory reserves may not follow any well-defined and consistent policy, whereas the various acceleration schemes are at least designed to follow a set pattern. However, the general point still seems applicable, that an artificial element of stability may be introduced into the earnings stream when a larger proportion of asset costs are charged off in the early years of use.

There is one final consideration that deserves some attention. Some investment services have been impressed with the short-run overstatement of depreciation, in connection with the accelerated amortization of defense facilities for tax purposes. In consequence, they have implied, or stated outright, that depreciation can be ignored altogether in determining the estimated "true" earning power.

This point of view seems basically fallacious and misleading. Depreciation is still a very real cost of business operations, and any implication that it is not should be highly deplored. It is one thing to attempt to adjust earnings to a conventional depreciation basis for comparative purposes and quite another to add back all depreciation to the earnings stream and label the result "true" earnings.

Strictly speaking, earnings before depreciation are not even "cash" earnings if the company has made outlays to replace assets retired from use during the year, and such is almost always the case. True enough, the depreciation charge per se does not involve a cash outlay, but to seize on this fact and to ignore the fundamental economic relationship between this charge and the normal turnover of plant and equipment would seem quite short-sighted. In the ordinary course of events, any distribution to investors in the form of dividends which exceeded earnings after normal depreciation would be a partial liquidation of the company and should be regarded as such.

Of course, if a company has assets on which depreciation charges are being made, and these assets are excessive, in the sense that they are not needed in long-run productive operations, then a partial recovery of an original investment might be obtained via liquidating dividends. And, in a few special situations, this prospect cannot be disregarded by the security analyst, but, even in these cases, it must be recognized that the investor is aiming at a gradual return of capital rather than income in the economic sense.

In summary, our conclusions are first that it is entirely appropriate to adjust earnings where necessary to a conventional depreciation basis, for purposes of making comparative analyses of earnings. However, the extreme practice of adding back all depreciation to the income stream and holding that the result is "true" earnings is a highly misleading practice.

Second, because historical cost has been generally retained as the depreciable value base, the various acceleration schemes may merely result in a shift of depreciation expense from one accounting period to another. Our conjecture is that this shifting might tend to result in a greater stability of reported earnings.

Third, if price-level considerations seem to justify a restatement of depreciation expense to a replacement-cost basis, it would be more appropriate to revalue the assets on the balance sheet and maintain a rate of write-off controlled by economic life expectancy. Confusing the value base subject to depreciation with the rate of depreciation has not been a particularly helpful development to the investor.

DETROIT EDISON REPORTS

A Great Year

Newsworthy accomplishments in 1954, and plans for the future as well, are shown in our latest Annual Report to Stockholders.

Construction of a sixth power plant, at River Rouge, progresses on schedule. By 1956, the first two units, 260,000 kilowatts each, should be producing the extra power that will be needed by then in fast-growing Southeastern Michigan.

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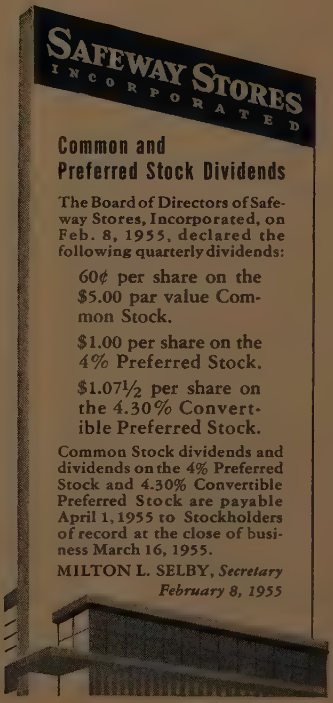

Common and Preferred Stock Dividends

The Board of Directors of Safeway Stores, Incorporated, on Feb. 8, 1955, declared the following quarterly dividends:

60¢ per share on the $5.00 par value Common Stock.

$1.00 per share on the 4% Preferred Stock.

$1.07½ per share on the 4.30% Convertible Preferred Stock.

Common Stock dividends and dividends on the 4% Preferred Stock and 4.30% Convertible Preferred Stock are payable April 1, 1955 to Stockholders of record at the close of business March 16, 1955.

MILTON L. SELBY, *Secretary*
February 8, 1955

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Holland Furnace is the *only* company in the industry which retails. This requires it to maintain its own sales outlets, which, in turn, allows it to control the end use of its products.

Because of this, it can not only guarantee heating comfort and satisfaction, but *effectively stand behind such a guarantee.*

To insure your continuing comfort, the Company employs over 5000 men in 500 factory branches, ready to serve you, along with our 17,500,000 present customers, twenty-four hours a day, year after year.

HOLLAND FURNACE COMPANY

World's Largest Installers of
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Main Office and Plants at HOLLAND, MICH.

Republic Steel

makes the legs of electronic communication

Electronic communication has hardly begun for civilian purposes, the prophets say. The backlog is huge.

One thing is sure—you can't start electronic communication systems until you have towers from which to broadcast.

The military needs towers to close the ring of electronic protection around our nation. Republic Steel makes the towers it uses. Republic has built the tallest U. S. Air Force towers in the world at Thule, Greenland, and Forestport, New York.

But ultra-high frequency T.V. for civilians, also, needs legs before it can march across the nation. And the towers stand relatively close because short waves cannot travel far.

Yet even greater markets for electronic towers are foreseen: Police cars with radios tune to their own tower. Taxis with radios tune to their tower. And now, radios are appearing on factory interdepartment trucks and materials-handling equipment. Each factory system must tune to its tower.

Republic is one of the nation's largest manufacturers of towers for electronic communication.

Republic Steel

General Offices • Cleveland 1, Ohio

Where diversification makes the backlog last longer

Analysis of Turnpike Revenue Bonds

KENNETH C. BAUDER

AT THE BEGINNING OF 1954, there were 2,058 miles of toll roads in operation or under construction, costing $2.5 billion. During the year, financing of another 899 miles was accomplished through the sale of $1.5 billion tax-exempt revenue bonds. This brought the year-end total to nearly 3,000 miles of turnpikes, at a cost of $4 billion, an average of $1,350,000 per mile. Issues that may come to market in the next few months or so total over $900 million.

The favorable experience on the existing roads has had much to do with overcoming the natural reluctance of investors to purchase bonds of these construction projects. In fact, the very flood of new issues suggests that, perhaps, too little attention is being given to the basic fundamentals of turnpike operation. In view of the limited depression experience, the importance of the standard comparative ratios has yet to be tested.

WHY TURNPIKE AUTHORITIES ARE CREATED

From 32 million vehicles on the road in 1940, the total has expanded to over 58 million currently. In addition, automobiles are now much more powerful, so that existing highways are no longer adequate to accommodate the great increase of high-speed traffic. Meanwhile, construction of highways was restricted, first by the depression of the 1930's, and then by World War II, when materials were not available.

In order to alleviate some of the more serious road bottlenecks as rapidly as possible and permit avoidance of population centers, the states had to develop some method of financing the large amounts needed. Since use of regular highway funds could be expected to be of help only over a great many years, and since many state constitutions restrict the issuance of bonds, the creation of public corporations or authorities with power to issue bonds was an obvious and convenient solution.

Moreover, since the bonds are payable solely from tolls levied on the users of the turnpike, they are politically popular, in that tax increases are apparently avoided. Issuance of turnpike revenue bonds has permitted rapid construction of major highways where traffic problems are most pressing.

BASIC FUNDAMENTALS OF OPERATION

The decision to build a turnpike, meaning a limited-access, dual highway, should depend on the *basic need* for this type of road. The need derives from the inadequate condition of present roads due to unusual terrain features, poor maintenance, or heavy traffic.

Any or all of these factors act to slow down traffic, causing congestion and hazardous travel. When these conditions are present, construction of a turnpike almost automatically produces time savings for motorists.

Once a need for the toll road has been established, the next step is to determine whether it is economically feasible. In other words, can the road be built at a cost that can be amortized over a period of years through toll payments by users? Feasibility, then, depends on the number of vehicles that can be expected to use the turnpike at a certain level of toll charges.

Briefly stated, traffic is first estimated by applying various historic-growth indicators to discounted traffic levels on adjoining free roads. Toll rates are then applied to this traffic which will produce the amounts necessary to amortize the bonds.

However, there is the question (largely unanswered) of how high rates may go before diminishing revenues result through loss of traffic. Experience with existing toll roads has not yet indicated the answer.

On the Maine Turnpike, tolls were increased twice to a final level 50% above the initial charges, without apparent effect on the rate of traffic increase. Commuters on the northern end of the New Jersey Turnpike are charged 3.3 cents per mile, in comparison to the average 1.0 to 2.0 cents per mile, and yet the traffic increase on this section has been largely responsible for the extreme conservatism of original estimates. In any event, it can be stated that a relatively low toll permits more room for increase if necessary and can be considered a favorable factor.

When it is realized that paying a toll rate of 1.5 cents per mile is equivalent to doubling the price of a gallon of gasoline, it is obvious that important time savings must result if use of the toll road is to continue under less prosperous business conditions. The ratio "toll per minute

Table 1

Turnpike	Minutes Saved	Auto Toll Charged	Toll per Minute Saved, Cents
Indiana Toll Road	80	$1.95	2.44¢
Kansas Turnpike	95	3.80	4.04
Maine Turnpike*	44	0.75	3.41
New Jersey Turnpike*	70	1.75	2.50
Ohio Turnpike	189	3.00	1.59
Pennsylvania Turnpike+	210	3.25	1.55

*Original. +Philadelphia - Ohio.

Table 2

Turnpike	Vehicle-Miles per Mile of Road
Indiana Toll Road	4,670,000
Kansas Turnpike	2,100,000
Maine Turnpike	2,190,000
New Jersey Turnpike	7,375,000
Ohio Turnpike	3,170,000
Pennsylvania Turnpike	3,490,000

Table 3

Turnpike	Cost per Mile	Cost per Vehicle-Mile
Indiana Toll Road	$1,800,000	38.5¢
Kansas Turnpike	678,000	32.4
Maine Turnpike	477,000	24.0
New Jersey Turnpike	2,160,000	29.3
Ohio Turnpike	1,350,000	42.6
Pennsylvania Turnpike	740,000	22.2

Table 4

Turnpike	Net Operating Income, % Cost
Indiana Toll Road	5.15
Kansas Turnpike	4.68
Maine Turnpike	6.22
New Jersey Turnpike	7.16
Ohio Turnpike	4.89
Pennsylvania Turnpike	6.83

saved" is thought to be an important guide to the basic soundness of a turnpike (Table 1).

In other words, how much will it cost an automobile driver to save one minute by using the turnpike instead of the existing free road? Though the figure is based on a full-length automobile trip which sometimes does not offer the maximum time savings, it gives some indication, on a comparable basis, of the desirability and urgency of using the toll road.

Though it is true that a low level of traffic at a reasonable toll may produce sufficient revenues to support the bond issue, it is also true that the low level of traffic itself could mean that competing free roads are not heavily traveled, which removes one of the basic reasons for a turnpike. Therefore, heavy density of traffic is considered to be important to the success of the turnpike.

Density relates the total number of vehicles on the road to the average distance each one travels. For determining the average density over the entire length of the turnpike, I have used vehicle-miles divided by the total miles of road (Table 2). This affords a basis of comparison of one toll road with others. Vehicles per day at one recorder station may also be used, but this figure is limited to that particular section of road.

TRAFFIC DENSITY IMPORTANT

Traffic density is important, for example, to the West Virginia Turnpike, where large time savings result from the turnpike being used through the mountains instead of existing winding roads. However, the problem here revolves around generating sufficient traffic in a normally little-traveled area. For comparison, the original portion of the Pennsylvania Turnpike through the Allegheny Mountains affords similar time savings, but it also has a normally heavy traffic density. This particular sections of turnpike is thought to be a prime example of basic turnpike need.

In comparing the cost (total bonds sold) of turnpikes, the usual figure given is "cost per mile of road." Although this ratio itself is useful, it does not indicate the cost in relation to the traffic expected to travel the highway. This more indicative cost figure is revealed in the ratio "cost per vehicle-mile." Table 3 illustrates how a sizable disparity in per-mile cost may be leveled out by use of the other figure.

Another cost consideration is the rate of return to be earned on the total capital investment. Normally it requires nearly a 5% return to amortize the bonds to maturity, and this rate has been used as an acceptable standard. In revenue-bond analysis, this ratio is net operating income after expenses as a percentage of total cost (Table 4).

Although time saving, density, and cost are highly important, consideration must also be given to various other fundamentals. Since truck traffic is presumably more subject to business declines, the amount of dependency on truck revenues is a guide to the cyclical nature of the operation. The amount of "luxury" passenger-car travel, such as vacation or pleasure driving, must be taken into consideration. Normally only a small proportion of the vehicles travel the entire distance of the turnpike, so that the number of population centers adjacent to the toll road may be vital to its success.

Note that some of these factors cannot be compared on a statistical basis. Indeed, it must be remembered that all figures for a new road are only estimates of the engineers.

At present, there are only a handful of firms engaged in this type of work. Experience so far indicates conservatism of revenue estimates, and this has covered up the fact that operating-expense estimates have also been low. Therefore, though vehicle estimates proved correct, toll increases in some instances were necessary to cover the greatly inflated expenses that had not been foreseen.

COVERAGE COMPARISONS

In order to afford comparable coverage figures, ratios are based on the estimated net revenues in the first year of operation or the latest actual results. Interest consists of the maximum amount payable on bonds outstanding. Debt-service coverage is based on the average annual amount necessary to provide interest and amortization of the bonds by maturity, calculated from the initial year of operation. This permits direct comparability among the various turnpikes.

Perhaps a more significant ratio is the margin of safety. This is the amount remaining after payment of interest taken as a percentage of gross revenues. This figure shows the amount by which revenues may decline and still provide interest coverage if no change in expenses is assumed. It may be noted that gas rationing during World War II resulted in an average drop in vehicle facility revenues of about 35%.

INDENTURE PROVISIONS

In many instances, indenture provisions may prove confusing, so that close study is indicated. Of prime importance is the limitation on additional equal-lien bonds. In nearly all cases, provision is made to issue more bonds to complete the project. The strongest indentures permit only this, so that dilution cannot occur.

Many indentures now permit bond issues for additional projects, or extensions with certain limiting coverage pro-

Table 5. Suggested Measures of Turnpike Quality

	Acceptable Grade	Good Grade
Toll per minute saved	Under 2.5 cents	Under 2.0 cents
Vehicle-miles per mile of road	Over 3 million	Over 4 million
Cost per vehicle-mile	Under 40 cents	Under 35 cents
Auto toll per mile	Under 2 cents	Under 1.5 cents
Net operating income, % cost	Over 5%	Over 6%
Interest coverage	1.4X	1.6X
Level debt-service coverage	1.0X	1.25X
Margin of safety	35%	45%
Additional bonds	Limited	None

visions, designed to hold dilution to a minimum. However, although coverage may not be impaired, accelerated payment of the initial bonds could be delayed.

The toll covenant is often pointed out as a feature of strength. For example, tolls must be at a level to cover 120% of debt service and must be revised by the engineers if they are deficient. Actually, however, there is a limit to the practicality of this when tolls are already producing maximum returns. Therefore, this provision may not be of too great importance. Reserves set up in the indenture certainly deserve consideration, but it may be noted that nearly all agreements now provide for similar reserves, so that this feature has limited importance in a comparison.

In analyzing turnpike revenue bonds, the preliminary tests shown here may provide a guide to relative quality. However, actual experience with turnpike operation is so limited that the significance of the various ratios cannot be substantiated. For this reason it is thought that a mere statistical comparison, though useful in comparing one road with another, may, in fact, be somewhat meaningless.

Perhaps more essential is an understanding of the fundamentals involved, as outlined in this article. An ordinary road map, and, if possible, a traffic-flow map, are most helpful. Basically it is believed that those bonds offering the best values are those where the need for the toll road is obvious, traffic is heavy, and the toll is moderate.

THE COLUMBIA GAS SYSTEM, INC.

The Board of Directors has declared this day the following quarterly dividend:

Common Stock
No. 83, 20¢ per share

payable on May 14, 1955, to holders of record at close of business April 20, 1955.

Dale Parker
Secretary

April 7, 1955

BOSTON EDISON COMPANY

Dividend No. 264

A quarterly dividend of 70¢ per share has been declared, payable May 2, 1955, to stockholders of record at the close of business on April 8, 1955.

Checks will be mailed from Old Colony Trust Company, Boston.

ALBERT C. McMENIMEN, Treas.

Boston, March 15, 1955.

THE BALTIMORE AND OHIO RAILROAD CO.

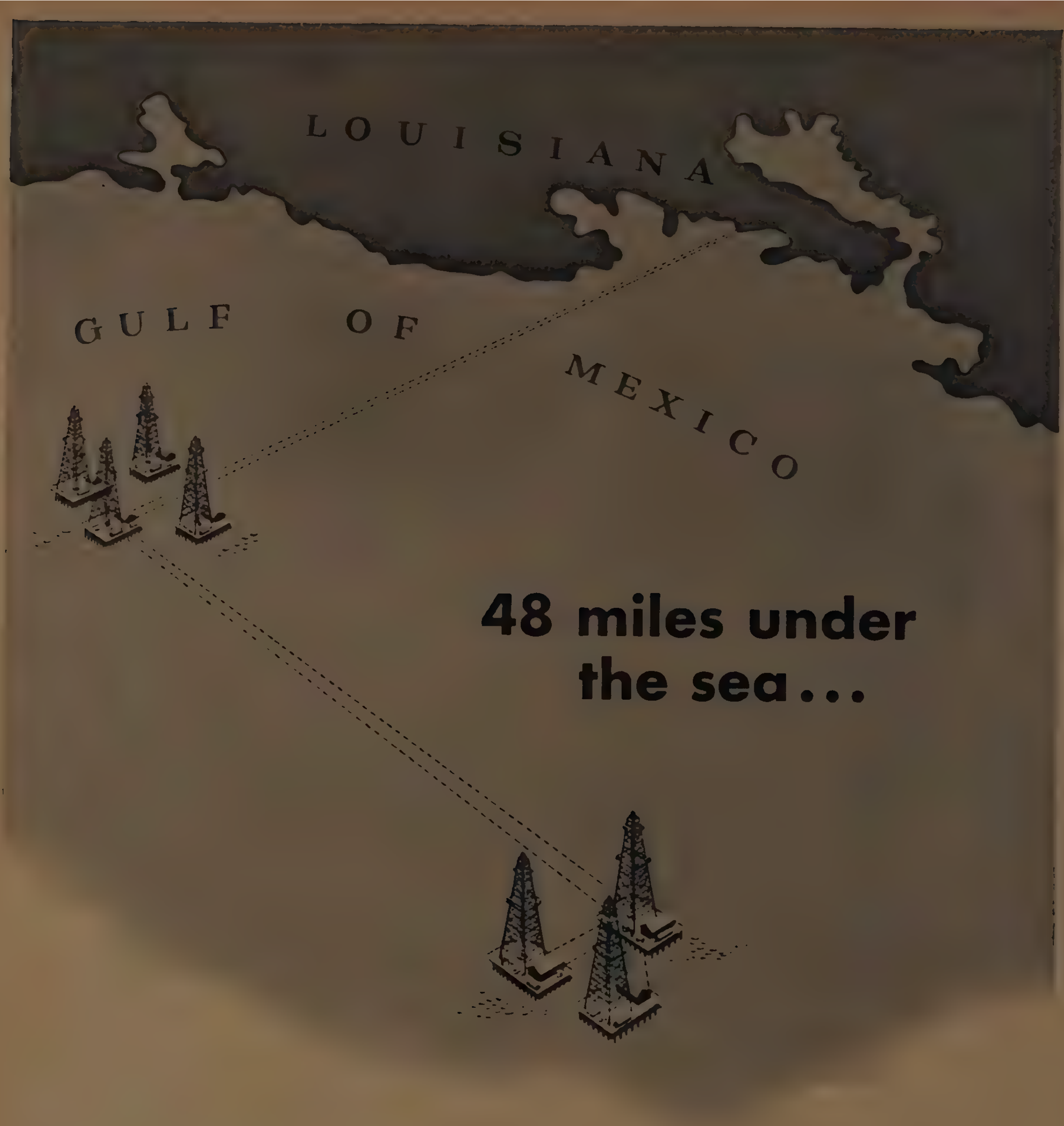
128th Annual Report—Year 1954

Income:	Year 1954	Comparison With 1953 (+) Increase (—) Decrease
From transportation of freight, passengers, mail, express, etc.	$378,088,687	—$82,760,299
From other sources—interest, dividends, rents, etc.	10,509,402	+ 122,835
Total Income	$388,598,089	—$82,637,464
Expenditures:		
Payrolls, supplies, services, taxes	$334,189,556	—$66,954,393
Interest, rents and services	39,879,744	— 2,178,927
Total Expenditures	$374,069,300	—$69,133,320
Net Income:		
For improvements, sinking funds and other purposes	$ 14,528,789	—$13,504,144

The full dividend of $4.00 per share was paid on the preferred stock. A dividend of $1.00 per share was paid on the common stock.

In 1954 long term debt in principal amount of $44,286,535 was paid off. During the period December 31, 1941 to December 31, 1954, long term debt, other than equipment obligations, was reduced $204,904,231, with an annual saving in interest charges of $9,261,515. Equipment obligations increased $57,238,974, which added $1,668,305 to annual interest charges. The net reduction in long term debt was $147,665,257, and the saving in annual interest $7,593,210.

H. E. SIMPSON, *President*



48 miles under the sea...

...that's the record-breaking length of this new pipeline under the Gulf of Mexico

Deep beneath the waters of the Gulf lies one of our nation's most promising sources of crude petroleum. A Socony-Vacuum affiliate, Magnolia Petroleum Company, and its associates are developing several oil and gas fields in this off-shore area—one as far as 28 miles from the Louisiana coast. Barges now bring the oil ashore at the rate of about 6,000 barrels daily, but operations are often curtailed by bad weather.

To assure a constant flow of oil and natural gas, an undersea pipeline is now under construction to gather this production. When completed, this line will extend a total length of 48 miles beneath the waters of the Gulf. It will permit nearly doubling Socony-Vacuum's present oil production there and will eventually be capable of delivering up to 50,000 barrels of oil daily to the Louisiana mainland.

★ ★ ★

This submarine gathering system, the longest undersea pipeline in the world, is another example of Socony-Vacuum's continuing efforts to help keep America supplied with the increasing quantities of petroleum it must have.

SOCONY-VACUUM

SOCONY-VACUUM OIL COMPANY, INC.

and Affiliates: MAGNOLIA PETROLEUM CO., GENERAL PETROLEUM CORP.

Petroleum Reserves and the Security Analyst

SAMUEL BALLEN

ESTIMATES OF THE DOLLAR VALUE of oil and gas reserves naturally are a key element in the analyst's appraisal of an oil security. Where he is concerned with a perpetuating corporate entity rather than a liquidating situation, the analyst is equally interested in four other aspects of an oil concern's relative standing with comparable companies in its group. Besides the estimated value of the oil and gas reserves, these other aspects include:

1. Ratio of current earning power to over-all market capitalization.
2. Quality of management, financial leverage, technical market position.
3. Yield and dividend prospects.
4. Near-term specific discovery prospects and long-term discovery outlook.

Although the art of analysis includes the correct weighing and prognostication of these five factors, it appears that the foundation of any oil appraisal must be the estimation of proven or prospective oil and gas reserves, and the translation of such quantities of barrels and cubic feet into dollars and cents. In the current industry environment of sellouts by small producing concerns and mergers of medium-sized integrated concerns, requests for appraisal of petroleum reserves have become an important part of the security analyst's work load.

Formerly most managements treated the question of reserves as an esoteric, classified matter to be guarded with the same zeal as unpatented research projects. In recent years, there has been a marked change for the better, in the willingness of management to discuss property and reserves.

The insistence of the SEC that full disclosure of reserves be part of any public financing under the Securities Act has assisted greatly in bringing the question of reserves from the cloak and dagger atmosphere out into the open. Further have been the improved standards of professional competence of petroleum analysts, who today are better equipped than heretofore to interpret intelligently the qualitative differences of identical quantitative reserve estimates. In this connection, there is an obvious distinction between 10 million barrels of 26-degree sour oil to be produced by the pump over fifteen years in a geographically remote area and 10 million barrels of 45-degree sweet oil to be produced in ten years largely through natural flow and located much closer to consuming markets.

Although most managements exhibit a liberal attitude, it is unfortunate that several companies remain reluctant to discuss reserves or to shed any light whatsoever on them. Though possibly, in certain few instances, sound reasons may justify this policy, we are inclined to believe that it is often due to insufficient appreciation of the agility of the analyst who, with or without proper guidance by management, must develop estimates of the magnitude of oil and gas reserves, in response to the demands of his employer or clients.

There are a few companies that notoriously refuse to divulge even elementary facts about their production. Fortunately in such cases there is no need for the analyst to feel totally inadequate, since the petroleum industry is quasiregulated, by dint of dealing with a depletable natural resource, and, as a consequence, most production activity becomes a matter of public record. The following are just a few pertinent items that are filed for public inspection in county or state offices:

1. The terms of an individual lease—royalty, drilling obligations, expiration dates.
2. Allowable and actual production by lease by month, classified according to whether wells were flowing or pumping.
3. Complete data on a given well.

From such types of public data, it is possible for the analyst to work up close estimates of oil reserves of a given company, utilizing a simple technique to be illustrated later in this article. Although the technique to be employed may perhaps be scoffed at by the petroleum engineering fraternity, we believe it is valid for the use of the security analyst, and it often works out amazingly close to the more accurate results prepared by competent engineers, who have intimate availability to the basic data.

In an average-sized company, the law of chance favors compensating errors in use of the technique, and such probability of compensating errors is also relied on by the petroleum engineer, who does not generally weigh physical factors for the drainage area of each well in an appraisal of an entire field. Even in those instances where the suggested technique proves in error by as much as 50%, the tool is nevertheless useful, in that it has at least indicated the possible range of reserves and has brought some light into the doubts and suspicions resulting from a policy of secrecy.

Further, an understanding of the nature of oil and gas reserve estimates will substantially allay the analyst's qualms. By this we mean that, although the field of petroleum engineering has made phenomenal strides in the past decade, it is still not a science operating within close tolerances of quantitative error.

Despite the numerous physical variables with which the petroleum engineer is dealing, his profession must still come a long way before it can equal its sister disciplines of chemical or mechanical engineering. This is even truer of the geologist, who often makes reserve estimates by empirical analogy, without even attempting the formula equations refined by the petroleum engineer. Three brief examples can perhaps illustrate the current degree of proficiency of the petroleum engineer in quantitative calculations of reserves.

1. In recent years concerted attempts were made to unitize the reef fields of Scurry County, Texas. Thousands of man-hours were expended by competent personnel in gathering data of net pay thickness, porosity, permeability, connate water, pressure gradients, gas/oil ratios, and chemical analyses of all fluids and gases.

Subsequently thousands of man-hours were expended in laboratory analyses of the depletion mechanism, under both natural and controlled reservoir conditions. With all this volume of data available, recognized consulting petroleum engineers submitted reserve estimates that varied by 40%, and the engineers of lending institutions showed their confidence in these studies by further reducing the conclusions by up to 30%.

2. In a case before the FPC last year, on a proposed natural gas pipe line, identical physical data were submitted to three qualified evaluation engineers. The conclusions of their studies based on these data varied by as much as 70%.

3. In a case before the FPC in 1948, on a proposed natural gas pipe line, two of the most respected evaluation firms were over 50% apart in their estimates of proven reserves on acreage in the well-known and long-producing Panhandle field.

The combination of the present state of competence of evaluation engineering and the unwillingness of nature to co-operate consistently with man's studies and conclusions of her reservoirs means succinctly that there is no such thing as "an oil or gas reserve." Mature people in the industry recognize that there are four distinct types of reserves:

1. Producers' reserves.
2. Bankers' reserves.
3. Buyers' reserves.
4. Sellers' reserves.

From a financial point of view, any errors that may result from the analyst's calculation of reserves by the method to be described here generally are of limited consequence. Normally, if an analyst calculates reserves at 10 million barrels instead of the more accurate goal of 15 million barrels which would have been arrived at if all the data were available to him, the effect may be to shorten the expected life of such properties to thirteen years from nineteen years.

Oil properties often trade at 65% of the present worth of the assets, before income taxes discounted at 6%, and stocks often sell at 70% of market value. The discount factor at 6% of the mean extra year (13 to 19 or 16th year) is 0.400. If a barrel of oil grossing $3 nets $2 after operating expenses and production and county taxes, the discounted net value is 80 cents per incremental barrel of reserves. The trading value would be 80 cents × 60%, or 52 cents per barrel of incremental reserves, and, after the 70% discount imposed by the securities market, the net effect is but 36 cents per incremental barrel. In view of the fact that reserve estimates are, in any event, an inexact science, and asset values are but one of many influences to be considered in security appraisals, errors of this magnitude do not make shoddy an otherwise professionally sound analysis.

ANALYST'S TECHNIQUE OF ROUGH CALCULATION OF OIL AND GAS RESERVES

Problem. The management of company *X* maintains a policy of revealing nothing about its production operations, aside from stating its annual gross and net production. For reasons known only to company *X*, it refuses to reveal to stockholders or analysts the location of its chief producing properties or quantity of production or quality of production. (As quixotic as this description may appear, it accurately mirrors several situations known to analysts.)

Background. It is apparent, at the outset, that discussions with competitors and other oil operators will reveal considerable information about company *X*. Furthermore, the local scout check is an established institution in most towns in the oil country. The scout check is a weekly affair of the National Oil Scouts and Landmen's Association, wherein exploration and production progress of companies is commonly discussed.

The ethics of the organization naturally require a high degree of discretion, but it is considered good practice for full disclosure to be made by company scouts when doing so will not be injurious to the employer. Obviously, the analyst can make great progress by discussions with these men.

Concrete Solution. At present nine states account for over 90% of domestic crude production. They are:

Texas	42%
California	15
Louisiana	11
Oklahoma	8
Kansas	5
Wyoming	4
New Mexico	3
Illinois	3
Colorado	2
	93%

Public records show the actual production by lease by month for every one of the above states, and there are commercial services that process the official filings of operators and show the operated production by company by field by number of wells by calendar period. Inasmuch as these filings reveal *Operated Production* rather than *Net Owned Production,* the analyst must employ discretion and experience in the use of these data.

If Standard Oil of Indiana, for instance, owns a one-half interest in a lease operated by Anderson Prichard, the filings may simply list ANP with 100% of the production. Presumably, however, the experienced analyst is aware of such relationships on major properties, and oversight of this nature is likely to be limited to small fields.

Although, theoretically, the analyst could check the public records of each state, this is not a practical solution. Fortunately, the following commercial and trade organizations, among others, extract these official data in their statistical reports. The subscription cost is not insignificant, but the petroleum analyst generally operates on a healthy budget, which makes provision for liberal field work, and such subscription expense does not become a burdensome portion of his budget:

Texas	C. D. Lockwoods, Houston.
California	Conservation Committee of California Oil Producers, Los Angeles.
Louisiana	R. W. Byram & Company, Baton Rouge.
Oklahoma	Petroleum Statistical Guide, Tulsa.
Kansas	Petroleum Statistical Guide, Tulsa.
Wyoming	Petroleum Information, Denver.
New Mexico	N. M. Oil & Gas Operating Committee, Hobbs.
Illinois	Illinois Basin Scout Check, Mattoon.
Colorado	Petroleum Information, Denver.

From these sources, the analyst can frequently list, by field, the major portion of the gross crude production of a given company. By referring to the annual yearbook, *Oil & Gas Field Development,* of the National Oil Scouts and Landmen's Association, the analyst can typically determine, for such fields, the depth of the producing sands, the gravity of oil, the cumulative production, the average thickness of pay formation and number of proven acres, the year of discovery, and the distribution of flowing and pumping wells.

At this point, despite the recalcitrance of the management of company *X*, the analyst has become quite familiar with the basic assets of the company. In these data being developed without the co-operation of company *X*, it is hard to visualize how the company has been injured competitively or otherwise.

To further his analysis, use is made of the annual reviews of the *Oil & Gas Journal* and *Petroleum World,* as well as of various reports of state boards. The *Oil & Gas Journal* gives its estimate by field of the remaining reserves, past production, and number of wells of over 600 fields in the United States. *Petroleum World's* annual issue does this for California; the *Petroleum Engineer* has done the same for 72 fields in the Rocky Mountains; and the New Mexico Oil and Gas Conservation Commission has prepared estimates of both oil and gas reserves for nearly 200 fields in that state.

It is a recognized fact that, despite the thousands of small fields producing in the United States, the bulk of past and future production will derive from only a handful of major fields. This is particularly true of stock companies who, unlike independent operators, have generally been fortunate to participate in a major field, which is often how they have been able to induce public ownership of their securities. In the United States as a whole, 200 fields are estimated to have furnished 55% of all past production and to hold 75% of remaining reserves. The probability, therefore, is that the analyst will find the fields in which he is interested included in one of the aforementioned compilations.

Obviously these field-reserve estimates must be treated cautiously. An operator with one 40-acre lease, ideally situated in an active water drive field, can conceivably recover 50% of the oil of a 200-acre field. This type of anomaly could be expanded at length.

Nevertheless, the analyst now has some concept of the distribution of company *X*'s production by field and number of wells in a given field, the physical characteristics of that field, an estimate of future reserves in that field, as well as statistics of the total past and current production in that field. Employing various simple mathematical techniques of either years' life production ratios or per acre recoveries or per well recoveries, the analyst can now develop some benchmark of company *X*'s reserves from that given field. If weighting is given to wellhead price and operating expenses, as indicated by depth and gravity, the analyst can translate these estimates of reserves into discounted future income by employment of the well-known mining and petroleum engineers' tables of current worth of future income.

Although these are not nearly so accurate, the analyst may attempt to throw equal light on natural gas reserves through employment of Annual Report Form 2 to the FPC, Exhibits to the G-580 Investigation of the FPC, the current rate schedules filed by independent gas producers with the FPC, and the Study for the Corps of Engineers in 1951 on Estimated Natural Gas Reserves Available for Synthetic Liquid Fuels Manufacture. The latter volumes cover every gas field in the United States and contain pertinent geologic information as well as reserve estimates.

CONCLUSION

The wisdom of the old adage of the shoemaker sticking to his own trade is proven every day, and we do not mean to imply that the petroleum analyst should deceive himself into qualifying as a reservoir engineer. Where major security studies or special deals are involved, obviously employment of the best-qualified petroleum engineers is required.

By the same token the analyst can make use of available public material to shed light on his problem and to suggest specific areas where further investigation might be warranted. We have been amazed in several cases to find that use of this technique has brought our estimates to within 95% of the official estimates submitted by major companies.

Since the nature of the analyst's occupation requires estimating asset values of reserves, and it is not practical in every study to employ expensive consulting firms, management may share responsibility where erroneous conclusions result from a policy of secrecy. It is hoped that we will witness a continuation of recent trends, whereby oil managements have recognized that questions of oil and gas reserves are the proper province of the stockholder and investment adviser.

The more conversant the analyst is with the dynamics and limitations of oil reserves, the more likely that those remaining skeptical managements will join the parade and include estimates of reserves in their annual reports together with balance sheet and profit and loss statements. If a few managements protest that they do not go to the expense annually of preparing internal estimates, that is equivalent to a man drawing checks and making deposits on his account, but never bothering to calculate his bank balance.

Associates

COMMERCIAL AND INSTALLMENT FINANCING

Automobile financing... AND A WAY OF LIFE

An era of unprecedented high living standards has developed during the last half century with the automobile as its symbol, mass production as its provider and installment financing as its moving force. Our American consumer credit system has converted the automobile and countless other products from glamorous luxuries into universally owned necessities. Associates has done its share. Thousands of automobile dealers the nation over use Associates services to expand their sales. Thousands of buyers utilize Associates time sales financing to pay for their cars from income rather than savings.

In 1954, Associates helped nearly a half-million families to car ownership—many of them families who never would have possessed an automobile without the aid of consumer credit. The sales made possible by this type of financing in turn make possible mass production. And mass production is the way to maintain high living standards. So long as people can buy automobiles, prosperity will continue. Associates helped keep the nation prosperous during 1954 with a billion dollar volume of automotive and related financing.

Condensed consolidated balance sheets

ASSETS

	Dec. 31, 1954	Dec. 31, 1953
Cash and Marketable Securities	$ 75,412,455	$ 66,684,776
Receivables:		
Retail motor vehicle installment receivables	$460,027,358	$434,574,458
Wholesale motor vehicle short term loans	38,290,322	44,610,537
Direct and personal installment loans	38,289,138	38,227,746
Commercial and other receivables	27,297,874	35,043,194
	$563,904,692	$552,455,935
Less: Unearned discounts	34,493,813	32,482,543
Reserve for losses	13,604,172	11,890,358
Total receivables, net	$515,806,707	$508,083,034
Other Assets	8,832,220	6,668,544
	$600,051,382	$581,436,354

LIABILITIES

	Dec. 31, 1954	Dec. 31, 1953
Notes Payable, short term	$262,574,200	$285,592,300
Term Notes due within one year	36,270,000	11,700,000
Common Stock Dividends payable Jan. 3, 1955	1,562,736	1,406,462
Accounts Payable, Accruals and Reserves	33,530,390	33,192,386
Unearned Insurance Premiums	25,689,566	25,970,185
Long Term Notes	107,735,000	109,455,000
Subordinated Long Term Notes	41,500,000	35,000,000
Preferred Stock	12,500,000	9,700,000
Common Stock	31,254,720	31,254,720
Surplus	47,434,770	38,165,301
	$600,051,382	$581,436,354

Condensed consolidated income statements

	Year Ended Dec. 31, 1954	Year Ended Dec. 31, 1953
Discount, interest, premiums and other income	$94,199,209	$91,014,968
Operating expenses	63,719,419	62,360,906
Net income before Federal income tax	$30,479,790	$28,654,062
Provision for Federal income tax	14,800,000	15,150,000
Net income	$15,679,790	$13,504,062
Consolidated net earnings per share of common stock after payment of preferred dividends	$4.85	$4.19

Associates Investment Company

Associates Discount Corporation

Emmco Insurance Company

SOUTH BEND, INDIANA

COPIES OF THE 1954 ANNUAL REPORT ARE AVAILABLE ON REQUEST

Dynamic Dollars

ROY L. GARIS

THE GREAT CONTROVERSY in Government finance between the United States Treasury and the Federal Reserve System, which broke into undisguised warfare over the rate of interest on Government securities, was not settled by the compromise in March 1951. Any analysis of monthly letters and literature released by commercial banks reveals uncertainty and even fear concerning the future status of the Federal Reserve System.

In recent years, the Treasury has rapidly encroached on the independent status of the Federal Reserve System. Nor can the danger be lessened until a constructive solution has been found to the problem of the public debt.

Even the private ownership of the Federal Reserve banks is the subject of attack. Is the Reserve System to be the mere stooge of the Treasury, or is it to be the Gibraltar of our capitalistic system of free enterprise? Are we going to follow in the footsteps of many other Governments in the nationalization of our central banking (Federal Reserve) system, or are we going to enable our private banking and Federal Reserve System to function efficiently and successfully in an expanding economy?

In its monthly letter of December 1954, the National City Bank of New York states:

> The issue is not whether we can have economic progress. The issue is whether, by the means we choose to meet maladjustments that arise, we promote or hinder the adjustments of the productive and distributive mechanism *to the wants of the people,* and foster or destroy the balancing of competitive forces that can give a *soundly expanding economy, based on a reliable currency and a sustained flow of new savings for investment.* (Italics added.)

A constructive proposal that clarifies the atmosphere and enables us to analyze these problems from a different approach has been entitled "dynamic dollars." Its author has one of the most inquiring minds that I have met in my more than thirty years of college teaching.

Silas W. Brister is a creative thinker. Born in 1890, of exslave parents in Mississippi, he escaped from the farm as a share cropper and won many academic honors in eastern colleges, before becoming a Presbyterian clergyman.

As a result of heavy financial losses during the depression he asked himself the question: "Where Does the Money Come from?" Although he had never heard of "100% money" he came to the conclusion, as many authorities on the business cycle have done, that banks should not manufacture credit, for the reason that they expand credit and create money in good times, but quickly contract it in periods of business recession. Thereby bankers contribute to the forces that, in his opinion, are basic causes of the business cycle.

PERVERSE ELASTICITY

It is a perverse elasticity. Instead of what he calls "depression or cyclical dollars," he wants a "dynamic dollar"—a dollar that he describes as the monetary unit of the common man.

Under the dynamic-dollar plan, every commercial bank would be required, in its own as well as the public interest and security, to maintain a reserve in dynamic dollars (cash) equal to the total amount of its deposits—dollar for dollar—a one-for-one ratio. The proposal, however, is quite different from Professor Fisher's "100% money," although its author agrees with William Jennings Bryan, Professor Fisher, and many others that commercial banks should not create money (credit), or expand purchasing power, except in their capacity as agents.

To secure these dollars, to be held by each commercial bank equal to its deposits, the Federal Reserve banks would be required to buy Government securities from the commercial banks until the one-for-one-ratio exists. All present existing legal reserves against deposits would be abolished. Instead, a legal reserve of 100% cash would be held in each commercial bank behind its deposits.

TOTAL DEPOSITS IN U. S. BANKS

As of September 29, 1954 (latest available data), total deposits in 14,436 banks in the United States amounted to $201,150 million, of which $113,140 million were demand and $72,540 million were time deposits. As of August 1954, commercial banks owned $67 billion of U. S. Government securities, which could be sold to the Federal Reserve banks for cash, to set up the one-for-one ratio behind deposits.

The abolition of all legal reserves would free the $18,722 million (as of October 31, 1954) of deposits of member banks in the Federal Reserve banks, thereby adding this amount to the one-for-one ratio. It would then be necessary for the commercial banks to convert approximately $28 billion of their assets into Government securities, to enable them to attain the one-for-one ratio behind their demand deposits, or a total of approximately $100 billion, to attain the one-for-one ratio behind total deposits — demand and time.

As of September 29, 1954, all banks in the United States had assets in the form of loans of $81,680 million, other securities of $20,160 million, and cash assets of $40,620 million. Total capital accounts amounted to $16,860 million.

The necessary $100 billion in U. S. Government securities, to establish the one-for-one ratio behind total deposits, could be secured from the conversion of these assets. It is not, therefore, an impossible situation, but it is one not too difficult of attainment under proper Congressional legislation.

As of August 1954, the total gross debt of the Federal Government was $274,982 million. The public held $225,471 million of this, the balance being held by U. S. Government agencies and trust funds. (As noted, $67 billion of the $225 billion are owned now by the commercial banks.)

The ultimate acquisition of $185 billion of the total of $275 billion of U. S. Government securities by the commercial banks, to sell to the Federal Reserve banks in exchange for currency necessary to set up the one-for-one ratio behind deposits, would be a major step in the solution of the problem of the public debt. Furthermore, every depositor in every commercial bank would know that, at all times, his deposit, regardless of size, would be equal to cash. (The FDIC insures deposits only up to $10,000 for any one account.) He would never have an occasion, therefore, to precipitate a run on any bank.

The Federal Deposit Insurance Corporation would be unnecessary after reconstruction were completed. It could, therefore, be abolished.

As at present, depositors would write checks on their demand deposits, and the banks would clear them as they now do. For such services, banks would make reasonable service charges, approved by the Board of Governors of the Federal Reserve System.

The Federal Reserve banks would buy Government securities from the commercial banks with Federal Reserve notes. All other currency except silver certificates would be removed from circulation as early as possible, thereby simplifying the currency system.

However, these Federal Reserve notes would not be *fiat* money for they would be backed 100% by the Government securities, which would be deposited by the Federal Reserve banks with the Federal Reserve agents, from whom the Federal Reserve banks would secure the Federal Reserve notes, *just as they do today.*

The present minimum gold reserve of 25% behind Federal Reserve notes would be abolished. All gold assets in the country—$21,810 million as of September 30, 1954 — would be transferred into a stabilization fund, which would be used solely for the settlement of international transactions, and for legitimate industrial and commercial purposes.

THE PRICE OF GOLD

The price of gold, as now, would continue to be $35 per fine ounce. In this capacity, gold would continue to perform its function as the standard of value for all currencies in all countries.

Federal Reserve notes would thereafter be *fiduciary* currency backed by a 100% reserve in Government securities (or 100% collateral discussed below). However, this would give the holders of such currency, backed by Government securities, a claim against the *entire wealth of this country through the taxing authority of the United States Government.*

This protection should be sufficient to maintain confidence in this currency. Such a plan is working successfully in Great Britain today where the currency is backed solely by a 100% reserve in Government securities.

The dynamic-dollar plan would require Federal Reserve banks to continue to pay 6% dividends to member banks as at present, for its author is strongly in favor of continued *private* ownership of the Federal Reserve banks by the member banks. Little or no change would need to be made in the structure of the Federal Reserve banks or in the Board of Governors of the Federal Reserve System.

However, the plan proposes that Congress levy a franchise tax of 100% of all profits made by the Federal Reserve banks above the 6% dividends paid to member banks. A 90% tax is paid today.

Once such securities came into the ownership of the Federal Reserve banks, they would be converted by the U. S. Treasury into perpetual bonds, bearing a reasonable interest rate of perhaps 3%. Thus the U. S. Treasury would pay interest on its bonds to the Federal Reserve banks, but would recover a very high percentage of these interest payments through the franchise tax of 100% of the Federal Reserve banks' earnings above 6%.

By this means Congress would go far toward a constructive solution to the problem of the Federal debt. In effect, the debt would be neutralized. It would also take from the commercial banks the power to create credit with "cyclical dollars."

FUTURE CREDIT

From what sources would future credit come? The answer is from an inexhaustible supply of "dynamic dollars," based on *real* values which would have *true* elasticity.

Any business organization that needs money for commercial purposes, any farmer or agricultural producing organization in need of intermediate or short-term credit, and any individual in need of funds for such things as home building and repairs, installment purchases, and consumption in times of emergency would apply as now to his commercial bank for the money he needs. Assuming that he is applying in good faith and that his application meets standard tests set up by the Board of Governors of the Federal Reserve System—just as the FHA does today—his application would be approved automatically and immediately. There would be no bickering and no uncertainty about it.

If he should be refused by the local commercial bank, he would always have an immediate appeal to the district Federal Reserve bank, whose decision would be final. Thus any person wishing to build or improve a home or finance a small business, and so on, would have funds available.

Such loans would bear an interest rate fixed from time to time by the Board of Governors of the Federal Reserve System, but not to exceed 6% under any circumstances. Two thirds (2/3) of the interest on each such commercial and investment loan would go to the commercial bank handling the loan. *This is exactly what takes place to a greater or less extent today under FHA and Fanny May loans.*

Since the commercial bank would run no risk of loss, this would be excellent remuneration for its services as an agent of the district Federal Reserve bank, and would supplement its other sources of income from service charges, from rental of safe deposit boxes, and the like. In fact, the earnings of commercial banks should be much more favorable than they are today. The expediency of a penalty against a commercial bank for carelessness or greed in approving unsound loans, or for violating the rules and regulations of the Board of Governors, would be permissible and is recommended.

It would seem logical that, under the plan, all existing nonmember commercial banks would hasten to join the Federal Reserve System voluntarily in order to secure its benefits. But any such banks that did not join in a stipulated period of time would have to withdraw from the commercial banking field. The existing dual system of granting bank charters—national and state—need not be disturbed.

Where would the commercial banks get the necessary funds to lend? Such banks would be the agents of the Federal Reserve banks in the making of all such commercial and other loans. As soon as the commercial bank approved such a loan, it would transmit, sell, or rediscount it to its district Federal Reserve bank for Federal Reserve notes (cash), to give to the borrower if he should desire cash, or to hold in its vaults as a one-for-one reserve behind a demand deposit if, instead, the borrower should wish a deposit that he desired to check upon.

Again this would not be fiat money but would be backed 100% by the contracts, collateral, mortgages, and the like, given to or deposited by the borrower with the commercial bank making the loan, *just as is the case today against deposits resulting from loans.* These would be sold at once to the Federal Reserve bank, which in each case would deposit the contract, commercial paper, collateral, and so on, with the Federal Reserve agent when he released the necessary Federal Reserve notes to the Federal Rseerve bank to send to the commercial bank, for release to the borrower, or to hold as one-for-one reserve behind his deposit.

When the borrower paid off his obligation under an approved plan, the commercial bank would return the necessary Federal Reserve notes or cash to the Federal Reserve bank, which would turn the currency into the Federal Reserve agent in order to obtain the contract, commercial paper, mortgages, and so on, to be canceled and returned to the borrower.

The dynamic-dollar proposal would assure elasticity of the currency beyond the fondest dreams of our monetary authorities. Indeed, *it would create the kind of elasticity that the authors of the Federal Reserve Act had in mind in* 1913 *when the system was originated.*

Thus, no legitimate borrower in need of funds at any time, to finance commercial or agricultural transactions, to finance sound installment purchases, to build or improve homes, and so on, would have any fear of a denial of necessary financing. Credit would expand when needed, and contract when it was no longer needed and when it was being paid off.

NOTHING RADICAL ABOUT THE PROPOSAL

The following facts indicate that there is nothing radical about this proposal. During World War II, the Federal Reserve banks *guaranteed* war-production and contract-termination loans made by commercial banks and other financing institutions. The guarantee arrangement *expedited* the production of essential goods and materials by competent contractors who lacked sufficient working capital. A program of guaranteed loans patterned after the wartime program was inaugurated in 1950 as a result of the Korean conflict. A total of 1,355 guaranteed loans have been approved since 1950, amounting to $2,477,939,000.

Fanny May has operated along lines somewhat like those suggested here by dynamic dollars. The vast FHA operations are certainly "first cousins" to "dynamic dollars." Fanny May and the entire FHA could be abolished with great savings to the public, for "dynamic dollars" would do their jobs more efficiently, economically, and effectively.

During World War II, in Great Britain, the Bank of England performed many functions like those set forth by "dynamic dollars," in that it made credit available when credit could not be secured elsewhere. All transactions with the public in the foreign-exchange market were handled by the commercial banks in Great Britain, but these "authorized dealers" acted only as agents for the authorities, had to operate solely at uniform rates fixed by the Bank of England, and were remunerated by a commission.

In the United States, the Federal Reserve banks have had the authority, since 1933, to lend *directly* to business concerns and individuals under stipulated conditions. Although this was originally an emergency measure, it was later made permanent.

APPLICATIONS APPROVED TO DATE

Applications approved to date (as of September 1954) number 3,769 and amount to $815,449,000. The expansion of this function of the Federal Reserve banks would have been far superior to the Small Business Administration, which was created when the Reconstruction Finance Corporation ceased to function in 1953.

In opposition to this position, the *Wall Street Journal,* March 19, 1953, stated: "The Reserve authorities cannot keep the necessary aloofness if they themselves are engaged in commercial banking." This ignores the fact that the Bank of England, the Bank of France, and other central banks do carry on extensive commercial banking activities successfully.

Under the "dynamic-dollar" proposal, the Federal Reserve banks would not be in competition with the commercial banks (as in other countries). Instead the commercial banks would be agents of the Federal Reserve banks.

Under the "dynamic-dollar" plan, the fact is recognized that, when the proposal is first put into operation, there might be such a rush for credit for innumerable desirable and sound projects that a temporary problem of allocation of resources might be necessary. Such a temporary allocation might be effected by the operation of the forces of supply and demand, with the result that some borrowers would have to postpone their projects until reductions in prices of materials make it possible for them to complete their proposed projects within their financial ability to meet their obligations. For all grants of credit must be well within the capacity of borrowers to repay.

The plan recognizes also that the tests or rules set up by the Board of Governors should not be rigid and inflexible. Instead, the Board should adjust the specifications and operating standards from time to time, to meet the needs of a dynamic economy. Hence, it should be within the authority of the Board of Governors to classify loans as to priority, should the necessity arise temporarily, owing to a shortage of supplies and resources.

This raises the major question of the proper functions and responsibilities of the Board of Governors under the plan. Is the Board of Governors to supervise only the mechanical aspects of the plan in setting up standards of credit approval, in guiding the flow through the Federal Reserve System and back, and so on, or is the Board to supervise the credit aspects of our economy, in order to lessen and, if possible, to obviate abnormal credit conditions and elements of instability as they arise? If the latter, then to what extent?

FULL UTILIZATION

The plan contemplates a full utilization of our resources and man power, not only under conditions of war, but also especially under conditions of peace. It also recognizes the many variables in our dynamic economy, such as changes in the value of money, the problems of inflation, the factors of technological improvements, the inevitability of errors in anticipations, expectations, and forecasting, and the growth in and shifts of population. The problems of recession and unemployment and a minimization of deficit financing by the Government must be dealt with constructively.

It is believed that this proposal will facilitate the development of healthy monetary and credit conditions that will enable the Board of Governors to meet these problems successfully with a minimum of Government interference, in a manner that will strengthen our system of free enterprise. It is designed to make Big Government unnecessary as an important source of private credit, in that it would restore the granting of credit to the Federal Reserve System.

In a relatively short period of time, as previously indicated, a number of existing financial institutions of the Federal Government could be abolished. There would no longer be any need for the FDIC, for the FHA, for the SBA to make loans to small business concerns, for the Federal Home Loan banks, for the production and intermediate credit divisions of the Agricultural Credit Administration, and so on. In time, such duplication could be eliminated, and much economy could be effected.

This would enable the *Federal Government virtually to retire from the banking field*. The Federal Reserve banks would make and guarantee all such loans in the future. In all such transactions, the commercial banks would merely be the agents of the Federal Reserve banks, and only in this capacity could they create credit. Since the latter could secure all funds necessary from the Federal Reserve agents by depositing as collateral the commercial paper, mortgages, contracts, and the like, involved, no monetary crises or shortage could ever arise.

Credit would be what monetary economists call "normal credit" at all times, since under all conditions it would be backed by 100% or more in actual values already existing or to be created. *Normal credit is not a causal factor in price changes.*

Any development of abnormal credit, which is backed only by capitalized hopes and by fictitious values, could be easily recognized and measured by existing statistical mechanisms and economic processes of analysis. This would enable the Board of Governors to adjust its rules and regulations to correct such problems, before they matured into serious maladjustments. The conditions that existed before 1929—many of the conditions that exist today—could not exist to threaten the economy, or ever bring it to disastrous deflation as in 1929.

COMPENSATE FOR LOSSES

The one-third (1/3) share of the interest paid by the borrower to the commercial bank and going to the Federal Reserve bank would more than compensate the Federal Reserve bank for any losses involved in guaranteeing all such loans, and for expenses involved, and so on. Its share of this interest should contribute, therefore, in a major way, to the earnings of the Federal Reserve banks *in excess of the 6% necessary to pay dividends to the member banks.*

It is a cardinal principle of "dynamic dollars" that all such excess earnings paid into the U. S. Treasury as a franchise tax should be *earmarked by law by the Treasury to meet service charges on the public debt and greatly reduce it from time to time.* Under the plan, it would seem reasonable to expect that the income from these sources would free the taxpayer from having to pay any of the service charges on the public debt, even if all of it is refinanced—as it should be—on a perpetual basis at 3% interest. It goes without saying that the plan anticipates that Congress will control any expansion of the public debt.

If an unfortunate event or crisis occurs, necessitating the sale of additional bonds by the Federal Government, sales could be made directly to the American people and paid for out of their savings. To minimize *direct* sales of such bonds in the future to the Federal Reserve banks, which would be inflationary, individuals, business organizations, and financial institutions, when unable to pay in full at the time of purchase, could buy the bonds from the Treasury on the installment plan.

The necessary cash could be secured from the commercial banks, as proposed previously for any other loan. The purchaser would give his promissory note to the commercial bank, in an amount equal to his ability to purchase bonds. This note could be discounted or transferred to the Federal Reserve bank. The bonds would be held as collateral until fully paid for, within a stipulated period of time. Obviously, in such cases, the interest on such a note would have to be identical with the interest on the bond.

The existing artificialities that surround the public debt today could be removed. Public confidence in the obligations of the Federal Government could then be maintained, and the public would have every inducement to buy and hold such bonds as an investment. But, if such sales should prove to be inadequate, then direct sales to the Federal Reserve banks by the Treasury would seem to be the only alternative.

EFFECT WOULD BE VARIED

The effect of "dynamic dollars" on many existing financial institutions would be varied. Those consumer credit institutions which in many states charge 18 to 42%, even up to 600%, to persons with limited credit, might still find "customers," but with increasing difficulty. Those installment finance companies charging 12 to 20% or more would find their "customers" to be few and far between.

With "dynamic dollars" in effective operation, there would be fewer "victims" for disreputable financial organizations to prey on. For, under this plan, consumers should be able to get better credit services on more reasonable terms than at present.

CONTINUE TO FUNCTION AS AT PRESENT

Insurance companies and investment banks would continue to function as at present. The same could be said for savings banks, Federal savings and loan associations, and the like.

SOURCES OF LONG-TERM CREDIT

These financial institutions would be sources of long-term capital credit. They would continue to attract the savings of the public.

Although the existence of the production credit corporations and the intermediate credit banks in the Farm Credit Administration would no longer be necessary, the 12 Federal land banks that grant long-term credit might continue to be needed for a limited time. It is conceivable, however, that their types of loans to farmers could be met by private enterprise seeking long-term investments.

Furthermore, "dynamic dollars" does not contemplate entering the field of capital investment. And, in the mortgage field, existing institutions should be able to function as now in competition with the commercial banks. Postal savings banks could be abolished at once.

URGE TO MERGE WOULD BE LESSENED

Furthermore, the urge to merge, "which has seldom been stronger among the Nation's bankers," according to the *Wall Street Journal* of December 28, 1954, would be lessened under an effective "dynamic dollars" program. The independent unit banker, who has been on the frontier of American industrial progress, could once more be a major factor in our economy. For it is he who knows the financial needs of his clients and who could serve them well with "dynamic dollars."

NOT A PANACEA

The plan is not to be thought of as a panacea for all our financial ills. Abuses can and always will exist when common sense is ignored, and if and when bankers and businessmen fail to practice sound principles of business. A major war is always inflationary under any plan.

NOT A PROPOSAL FOR PERPETUAL BOOM

It is not conceived of as a proposal for perpetual boom. However, "dynamic dollars" that serve when they are needed and are contracted when they have performed their services will replace "depression of cyclical dollars" that result from the manufacture of credit by our banks today.

Hence the plan should give true elasticity to our monetary system by meeting needs when needs exist and contracting when the needs no longer exist, *which was the original intent of the Federal Reserve Act of* 1913.

It can be a major step in the solution of the problem of the public debt, and it should lessen the tax burden of the American taxpayer.

STRENGTHEN OUR CAPITALISTIC SYSTEM

Above all, the plan should do much to strengthen our capitalistic system and enable free enterprise to flourish on a sound and enduring basis, free from the fears of recession and depression, and from an abnormal expansion of credit in periods of boom. For, at all times, our monetary and credit system would be based on attested values, in the form of contracts with private borrowers, deposited with the Federal Reserve agents, or in the form of the taxing power of the Federal Government that supports the faith and confidence of the public in the securities of the Federal Government.

All measures designed to correct weaknesses in the Federal Reserve System should seek to increase, rather than to destroy, its independence of political influence. They should increase, not reduce, its commercial nature. They should assure, not impair, its liquidity. They should free it from subservience to, or dominance by, Government financing. It is hoped that this proposal will receive the thoughtful consideration of the American people and their Congress.

DIVIDEND NUMBER 43

Interlake Iron Corporation has declared a dividend of 30 cents per share on its common stock payable March 31, 1955, to stockholders of record at the close of business March 15, 1955.

J. P. Fagan
Exec. Vice Pres. & Treas.

INTERLAKE IRON CORPORATION
CLEVELAND, OHIO
Blast furnace plants in Chicago, Duluth, Erie and Toledo

PACIFIC GAS and ELECTRIC CO.

DIVIDEND NOTICE

Common Stock Dividend No. 157

The Board of Directors on March 16, 1955, declared a cash dividend for the first quarter of the year of 55 cents per share upon the Company's common capital stock. This dividend will be paid by check on April 15, 1955, to common stockholders of record at the close of business on March 28, 1955. The Transfer Books will not be closed.

K. C. Christensen, Treasurer

San Francisco, California

MINNEAPOLIS GAS COMPANY
739 Marquette Avenue
Minneapolis 2, Minnesota

Common Stock Dividend

The Board of Directors of Minneapolis Gas Company, at a meeting held on March 11, 1955, declared a dividend of 31¼ cents per share payable in cash on May 10, 1955, to common stockholders of record as of the close of business April 25, 1955.

H. K. WRENCH, *President*

No less than 50 scientific tests made in the main research division at Cincinnati, Ohio, insure uniformly high quality on all National Distillers' brands. Slowly, gently, the whiskey ages and mellows traditionally in new char-lined oak barrels.

Can Science Test Traditional Quality?

It can—and does every day in our main Research division at Cincinnati, Ohio. It proves time and time again the perfection of our traditional formulas for producing the finest distilled beverages.

Whenever you select a National Distillers' brand — bourbon or rye, bond, straight, or blend, scotch or gin—you can be confident that the content of every bottle has met the severe standards of both the scientist and our own skilled, taste-testing experts.

At every stage of distillation, laboratory technicians use modern scientific procedures to guide and assure quality. Improved methods of filtration, precise temperature controls, rigid supervision through every step, careful storing and aging—including no less than 50 specific tests—guard the traditional formulas of the finest liquors that can be produced. No detail or expense is spared to bring you uniformly high quality in every National Distillers' brand you buy. The famous beverages listed below represent only one of National Distillers' diversified interests. Other activities include the production of petrochemicals, solvents, intermediate and finished chemicals—all serving the growing consumer and industrial markets across the nation.

National Distillers Products Corporation

NEW YORK 16, N. Y.

OLD GRAND - DAD · OLD TAYLOR · OLD CROW · PM · OLD SUNNY BROOK (BRAND) · GILBEY'S GIN · HILL and HILL
BELLOWS PARTNERS CHOICE · BOURBON DE LUXE · BOND & LILLARD · OLD HERMITAGE · DeKUYPER CORDIALS

OLD GRAND-DAD, OLD TAYLOR, OLD CROW, KENTUCKY STRAIGHT BOURBON WHISKIES, BOTTLED IN BOND, 100 PROOF. • PM BLENDED WHISKEY, 65% GRAIN NEUTRAL SPIRITS, 86 PROOF. • OLD SUNNY BROOK KENTUCKY WHISKEY—A BLEND, 65% GRAIN NEUTRAL SPIRITS, 86 PROOF. GILBEY'S DISTILLED LONDON DRY GIN, 100% GRAIN NEUTRAL SPIRITS, 90 PROOF. • BELLOWS PARTNERS CHOICE WHISKEY—A BLEND, 60% GRAIN NEUTRAL SPIRITS, 86.8 PROOF. • HILL AND HILL, BOURBON DE LUXE, BOND & LILLARD, OLD HERMITAGE, KENTUCKY WHISKIES.

Finance and Industry

EVERETT DOMINICK

When appreciating exhibits of modernistic art, we have heard unaccustomed critics express a wish to invert some baffling picture for better recognition. Likewise, in our title, the term finance might better follow industry.

At least it is certain that Mr. Cro-Magnon, by industry, first acquired surplus stone hammers and other goods. Later he invented finance to facilitate the gentle pursuit of marketing his surplus to new customers. Of necessity, his progress was retarded by a high mortality rate among customers, a meager level of living, and limited communication.

Over three centuries ago, our earliest settlers, almost as empty-handed as Mr. Cro-Magnon, made their precarious start in North America. Successive generations, by their industry, have multiplied the population, and by their inventiveness we inherit a vast array of installations and a vast wealth in goods.

All in all, industry and finance provide documentary evidence that our material gains amount to at least $2.8 trillion in up-to-date 1954 dollars. Of the slightly lower 1949 valuation, $2.02 trillion in ancient '49 currency, various proportions were held by different groups of financial intermediaries and institutional investors. With a representation of total national assets as a benchmark, let us consider approaches to illustrate and gage:

1. Comparative accumulation by groups of intermediaries.
2. Diffusion of savings by intermediaries toward installations and facilities for improved national capability.

Column 1 of Table 1 is a rearrangement of data from National Bureau of Economic Research Occasional Paper 42. As all deposit banking is influenced by national monetary policy, thus, in a modified sense, banking, including

Table 1

Sector	Current Dollars, Billions Column 1 12-31-49	Current Dollars, Billions Column 2 12-31-53
Government Sector		
U. S. banking system:#		
Federal Reserve	$ 192.0	$ 0.08
Commercial		
Savings & postal		
Other Federal agencies:+		
Pension, retirement, social security	34.0	
Lending agencies	12.3	
Land banks	1.0	
State & local authorities:		
1,000 agencies		
1,750 pension plans	5.0	
	$ 244.3	
Private Sector		
Life insurance companies	59.5	5.0
Fraternal insurance	2.0	
Fire & marine	6.6	
Casualty, miscellaneous	5.5	
Savings & loan	14.5	
Investment companies	5.5	4.2
Privately administered pension	6.9	1.5
Personal trust departments	50.0	19.0
University & foundation endowments		3.9
Foreign funds‡		3.7
	$ 150.5	$ 37.38
Total National Assets+	$2,020.0	$2,700.0

#Federal Reserve Bulletin 1164.

+National Bureau of Economic Research Occasional Paper 42.

‡Value Line Survey, Fortnightly Commentary, December 13, 1954.

Table 2

	1949 Assets, Billions	1949 Ratio, %
Financial intermediaries, government sector ÷ Total national	$ 244.3 $2,020.0	12
Institutional investors, private sector ÷ Total national	$ 150.0 $2,020.0	7.5

Table 3

	Assets, Billions	Ratio, %
December 31, 1952		
Total value, all common stocks ÷ Total value, national assets	$ 230# $2,700	$8\frac{1}{2}$
December 31, 1953		
Column 2, private sector + 2 funds, common-stock component ÷ Column 1, private sector	$ 37 $195+	19
Column 2, private sector + 2 funds, common-stock component ÷ Market value, all common stock, NYSE	$ 37 $110	33

#Fortune Magazine, March 1953, Irwin Friend, formerly with SEC.

+Estimated.

Table 4. Major Agency Funds
Billions of Dollars

Fund	6-30-53	6-30-54
Old age & survivors' insurance	$17.8	
Unemployment trust	9.2	
Veterans' life insurance	6.5	
Railroad retirement	3.1	
Federal employees' retirement	5.6	
Postal savings#	2.5	
Federal deposit insurance	1.5	
Other minor agencies	0.8	
	$47.0	$49.3

#See U. S. banking systems, column 1 of Table 1.

Federal Reserve banks and other Federal, state, and local financial intermediaries, constitutes a type of government sector. (See Table 2.)

Column 2 of Table 1 is our arrangement of data from *Business Week*, October 30, 1954, to indicate that $37.38 billion of common stock (listed on the New York Stock Exchange) was held December 31, 1953, by the private sector of institutional investors listed in column 1 and by two other funds. (See Table 3.)

Total assets as of December 31, 1949, $395 billion for all agencies in column 1 of Table 1 show growth rates as follows:

1929–34 }
1945–49 } = 3½% average annual
1939–45 = 11½% average annual
Peacetime mean = 7½% average annual

The abnormally high rate of 11½% occurred during price ceilings on wage rates when union managements pressed for fringe benefits.

"Other Federal Agencies," separately grouped in column 1 of Table 1, invest in U. S. Governments. These major agency funds are listed in the Annual Report of the U. S. Treasury Department as shown in Table 4.

Exclusive of Federal fiscal deficits, productive investment outlets in 1954 seeking savings of individuals and financial intermediaries are approximated in Table 5. If we assume these data to be an approximation of near-term trends, projections to gage future industrial demand for financial accommodation are also important. Among the most comprehensive studies to project the business volume of the American economy into the years ahead is the June 1952 Report to the President by the Materials Policy Commission. Other subsequent studies, also in expert detail, include energy requirements, fuels, electric power, atomic reactors, nonferrous metals, edifices, highways, cement, ship canals, wood products, synthetic fiber, and plastics.

According to the Brookings Institution, "Industrial Pensions," by examination of existing private industrial pension plans, the estimates shown in Table 6 are made possible.

We well may ponder on the projected contributions to future pension funds when, as, and if all potential eligible employees and pensioners of past service are covered. Brookings mentions $6.6 billion combined annual contributions to 1960 private-sector pension funds. By Supreme Court decision (Inland Steel, 1950), pensions are included as a mandatory part of collective bargaining. Here we have a new variable cost to be reckoned in the pricing of products and services.

MORE LIVE EELS

Among the quaint philosophies of Abraham Lincoln, there occurs his remark that, while one fried eel makes a good breakfast, a basket full of live eels makes a peck of trouble. Partly to confirm Lincoln's realism, we are closely arraying five measures of bank credit, almost as slippery to pin down as live eels in a basket (Table 7).

Notwithstanding the variable relations between identic account groups from left to right, a significant relation may be observed for total loans and investments:

Loans & Investments				*Ratio, %*
Col. 1 ÷ col. 2	81/123			66
Col. 1 ÷ col. 3		81/146		56
Col. 1 ÷ col. 4			81/173	47
Col. 1 ÷ col. 5			81/200	40

Detailed changes for accounts in columns 2, 3, 4, and 5 of Table 7 are published infrequently. Usually these unavoidably deferred reports can be constructed in advance for trend, by familiarity with and close scrutiny of current

Table 5. Productive Investment Outlets and Financial Resources
January 1, 1954, to January 1, 1955
Billions of Dollars

Industry Demand for Funds		Finance's Resources	
Corporation issues, new	$ 8.4	Personal savings, annual rate	$18.40
State, local municipal issues, new	5.0	Increase, 12-month period:	
		Customers' dr. balance, NYSE	0.65
Increase in outstanding real-estate mortgage loans	9.0	Collateral bank loans to individuals	0.35
		Consumers' credit	0.00
		Inventory & discrepancy	3.00
	$22.4		$22.40

Table 6

	1950	1960
Annual contributions to pension funds per employee covered	$247	
Combined contributions to funds	$2,056 million	$3,070 million
Employees covered	8 1/2 million	12 2/3 million
Potential eligible employees	36 million	42 million

Table 7. Five Measures of Bank Credit
Billions of Dollars
June 30, 1954

	(1) All Weekly Reporting Member Banks[a]	(2) All Member Banks[b]	(3) All Commercial Banks[b]	(4) All Banks Except Fed. Reserve[c]	(5) Pro Forma Consolidated Basis, All Banks & Fed. Reserve[d]
Loans	$39.1	$ 57.2	$ 67.3	$ 81.2	$ 81.2
Other investments	8.2	12.9	15.5	19.6	19.6
Governments	33.7	53.1	63.6	72.5	99.8
Loans & investments	$81.1	$123.2	$146.4	$173.3	$200.6
Reserve deposits at Federal	14.1	18.9	18.9	18.9	
Vault cash	0.9	2.0	2.6	2.9	
Currency outside				27.0	29.9[e]
Demand deposits, adjusted	53.3	82.8	98.1	112.6	98.1
Time deposits	18.3	36.9	45.6	71.3	73.3

References: Source: Federal Reserve Bulletin.
[a]Pages 858-859. [b]Page 1168. [c]Page 1165. [d]Page 1164. [e]Page 851.

weekly reports (see *Bank Credit Analyst,* 680 Sherbrooke Street West, Montreal).

Among other ratios deserving more than a fleeting glance is the relation shown in Table 8. The comparatively low 12.1% ratio of June 30, 1954, of "Column 4" of Table 8 is due to a mixture of 6,700 member banks, 7,200 nonmember commercial banks, and 525 savings banks and postal savings. Hence, $21.0 billion member reserve deposits and vault cash are wanting in richness when related to the total $173.3 billion earning assets of all 14,400 banks, as in this calculation. Placed as stepping stones, the columns show how closely constituent elements are tied together in one system. No separate check is deposited, no loan is granted or paid off, no house is mortgaged, no washing machine is bought on the installment plan, no Christmas Club or Birthday Club saving balance is drawn into circulation, without a corresponding and ever-widening circle of ripples in the ocean of credit (bank assets). So, as unaccustomed critics, let us have a closer look at the outline in column 5, on the chance there may be other perspectives and ratios for interpretation as interesting as the ones prescribed by law. Fortunately official data are available monthly in the *Federal Reserve Bulletin* by which to formulate a condition statement reasonably resembling that shown in Table 9.

TIDINGS OF HISTORY

The automatic sale to the Government, at an exorbitant price, of all domestic silver production is a disgraceful and most damaging influence. Federal deficits are of sufficient dimensions without this additional and unnecessary burden on the banking system and on the taxpayer. Already pump-priming subsidies of every kind and deficit financing have diverted 50% of self-liquidating bank credit from current assets to more rigid non-self-liquidating investments:

Consolidated, June 30, 1954		
Current assets	72	1/2 to 1
Current liabilities	148	

Indeed any corporate estate, financial or industrial, with a similar working ratio soon would be in court.

To transact ordinary exchanges plus pumped and war-waste exchanges, at rising price levels in terms of irredeemable paper money, the public is provided with double the amount of currency.

	1-1-55	1-1-35
U. S. demand deposits & currency per capita	800	400
Consumer price index (BLS)	115	57

Without resumption of specie payment in some form, discretionary monetary policy, under the prevailing statutory definition, will continue to be not fully effective for long-term price stability and for maintaining a two-way elasticity between currency volume and gold reserve. (See Table 10.)

Observe the following quotation from Bullion Report, ordered printed on June 8, 1810, by the House of Commons:

> In this country, gold is itself the measure of all exchangeable value, the scale to which all money prices are referred. It is so, not only by the usage and commercial habits of the country, but likewise by operation of law, . . ."

Remarking on the character, that is, the quantity and quality of irredeemable paper currency of that period, the report demonstrated Gresham's law which rules:

> A better and worse currency cannot circulate together. The worse will drive out the better.

Table 8. (Member Reserve Deposits at Federal + Vault Cash - Borrowing at Federal) ÷ Total Loans and Investments

	Ratios, Per Cent			
	1935-40	6-30-54	9-27-54	1919-20 1929-32
Column 1	...	17.0	...	...
Column 3	...	14.4	...	...
Column 4	40 plus	12.1	11.9	9.5

Table 9. U. S. Banking System as a Unit Transactor on a Consolidated Basis
Billions of Dollars
Pro Forma, June 30, 1954

Current Assets			Current Liabilities		
Working Account					
Gold certificates		$ 21.9	Currency outside		$ 29.9
			Demand deposits adjusted		98.3
Loans	$81.1		U. S. deposits:		
			At Federal	$0.9	
			At commercial banks	5.8	
Deduct:			Deposits of foreign banks	3.2	
Real-estate mortgage loans:			Treasury petty cash	0.8	10.7
Savings bank	13.9				
Commercial bank	17.3		Short-term $ liabilities		
Balance loans		49.9	to foreign creditors		9.0*
Total current assets		$ 71.8	Total current liabilities		$147.9
Investment Account					
Treasury currency (silver)		$ 5.0	Time deposits:		
Real-estate mortgage loans:			Postal savings		$ 2.3
Mutual savings banks		13.9	Mutual savings banks		25.4
Commercial banks		17.3	Commercial banks		45.6
Other securities		19.6			
Governments		99.9	Discrepancy & capital		6.3
Total Assets		$277.5	Total Liabilities & capital		$227.5

*Net.

Table 10. Reserves
June 30, 1954

	Amount, Billions	Reserves, Per Cent Consolidated Basis, Actual	 By Statutory Definition
Gold certificates ÷ Demand deposits & currency	$21.9 $128.2	17	45.8
Gold certificates ÷ US bank. system current liab.	$21.9 $147.9	15	

From every angle of reason within our reach, exactly the same wording applies here and now.

During all interregnums by irredeemable paper money, at unpredictable intervals, public credulity always has wavered and caused flight from one type of currency or storehouse of value to another. Definitely, in addition to lip service about a stable dollar, a more realistic definition of bank reserves and more detailed sector accounting by Government intermediaries would measurably strengthen finance and industry. Difficulties? Political obstacles? International barriers? We know that these exist and that the task of leadership is arduous. So, in conclusion, it will be appropriate to recall some remarks by the Rev. Harry Emerson Fosdick:

> *National Vespers, March* 31, 1946. *What the Law Cannot Do.* We say the Constitution made our Nation. It took more than that. Rather it was the founders who made the Constitution and then made it work. The Government they constituted got great things out of them, but it was not the Government that put the great things into them. What put the great things into them was their home life, their religion, their sense of personal responsibility, their devotion despite all difficulties, their love of liberty, and their personal character. When their Government *pumped*, it drew from profound depths in the lives of men where great spiritual forces had been at work.

* * *

1820—January . . . Flood of speculation largely in canal shares, New York City greatly excited.

After the panic of 1837, Mr. Bennett of the *New York Herald* published a list of solvent houses. Among these were Brown Brothers, August Belmont, James G. Kling & Sons.—*W. Barrett*

AMERICAN MACHINE & FOUNDRY COMPANY

Progress Report for 1954 is out today!

AMF's 3-directional progress in 1954

Atomic Research & Defense Products. AMF was awarded a prime contract to build the first privately-built atomic reactor for research. This project is now underway, and a second research reactor is planned for the New York area to be owned and operated jointly by a number of industrial concerns.

AMF has also been awarded highly classified defense contracts for guided missile ground equipment . . . recognition of high standing in advanced engineering.

New Acquisitions

National Bowling and Billiard Corp., Chicago, Ill.
BMC Manufacturing Corporation, Binghamton, N. Y.
Potter & Brumfield Mfg. Co., Inc., Princeton, Ind.
The Sight Light Corporation, Deep River, Conn.

These four concerns joined AMF's family of subsidiaries in 1954. The 1954 Progress Report tells in detail how their acquisition fits in with AMF's pattern of companies serving industry, government and consumer.

The Future. In the short span of one year AMF has made dramatic advances in the peacetime use of atomic energy—one of the great industries of the future. This, in addition to the strengthening of its industrial and consumer goods position, tremendous acceptance of the famous Pinspotter, and the continued recognition that defense contracts are a permanent and integral part of its operation—all are highly favorable factors for AMF in 1955 and in the future.

Morehead Patterson

Chairman of the Board and President

American Machine & Foundry Company
AMF Bldg., 261 Madison Ave., New York 16, N. Y.

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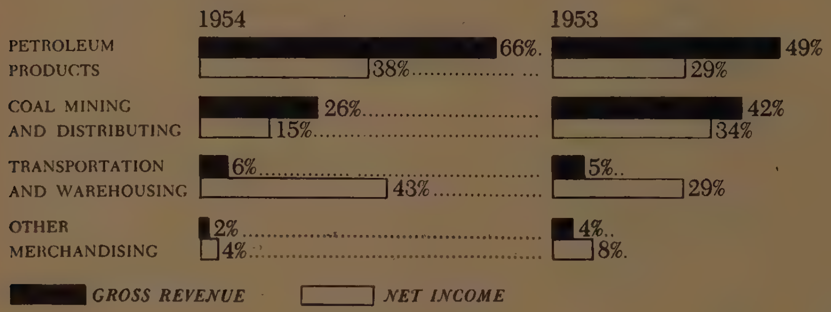
1929 · 25TH ANNIVERSARY · 1954

The Pittston Story
FOR 1954

Pittston's twenty-fifth year was marked by a new high in growth measured by total assets, which for the first time exceeded one hundred million dollars. Diversification of income is graphically shown in chart below.

Sources of Pittston Gross Revenue and Net Income



Highlights from 1954 Report

	1954	1953
Barrels of petroleum products sold	34,067,414	25,086,671
Net tons of coal sold	8,131,606	10,795,348
Total revenue	$159,735,766	$158,600,684
Net Income	$1,979,416*	$1,486,539
Per share of Common Stock	$2.58	$2.15

*Includes profit on sale of capital assets, net of income taxes and minority interest of $619,833.

TWENTY-FIFTH ANNUAL REPORT
THE PITTSTON COMPANY
1954

Copies of the Company's Annual Report are available upon request.

The Pittston Company

250 Park Avenue, New York 17, N. Y.

OIL · COAL · TRANSPORTATION · WAREHOUSING · NATURAL GAS

PRINCIPAL SUBSIDIARIES

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COMPASS COAL COMPANY
Clarksburg, W. Va.

LILLYBROOK COAL COMPANY
Lillybrook, W. Va.

AMIGO SMOKELESS COAL COMPANY
Lillybrook, W. Va.

METROPOLITAN PETROLEUM CORPORATION
New York

MARITIME PETROLEUM CORP.
New York

GLOBE FUEL PRODUCTS, INC.
Chicago

METROPOLITAN COAL COMPANY
Boston

PITTSTON CLINCHFIELD COAL SALES CORP.
New York

CLINCHFIELD FUEL COMPANY
Spartanburg, S. C.

DAVIS-CLINCHFIELD EXPORT COAL CORPORATION
New York

ROUTH COAL EXPORT CORP.
New York

UNITED STATES TRUCKING CORPORATION
New York

INDEPENDENT WAREHOUSES, INC.
New York

TANKPORT TERMINALS, INC.
Jersey City

VALENTINE TANKERS CORPORATION
New York

VALENTINE TRANSPORTATION CORPORATION
New York

A New Look at Puerto Rico and Puerto Rican Bonds

JOHN P. BRODERICK

BOTH INSTITUTIONAL AND INDIVIDUAL INVESTORS are giving more attention to Puerto Rican bonds today than ever before. One reason is that the New York State Legislature last year made certain of these bonds eligible as legal investments for savings banks; previously, because of technicalities in the wording of the law on savings bank investments, Puerto Rican bonds were ineligible, even though their sound investment status was recognized.

Another reason for greater investor attention is the growing recognition in financial circles of the remarkable progress being made in the industrialization of the island and the improvement in public health, education, and Puerto Rico's over-all economy.

Moreover, the statistical material relating to debt service coverage and increased revenues of such borrowers as the Puerto Rico Water Resources Authority and the Aqueduct and Sewer Authority is now being regularly distributed to investors by the Government Development Bank for Puerto Rico, which is fiscal agent for these borrowers as well as the Commonwealth itself and the municipalities. These statistics are impressive.

As a result of the economic development program first launched in Puerto Rico in 1942 and gaining momentum from year to year, industry is playing an ever-increasing role. Likewise, in the past few years, advances in air transportation have brought Puerto Rico, once days away

Table 1

	Fiscal Year Ended June 30			% Increase during
	1940	1948	1954	1940-54
Population	1,878,000*	2,151,000	2,239,000	19.2
Life expectancy, years	46	57	61*	32.6
Death rate per thousand	18	12	7.6	-57.8
Gross product+	$277	$750	$1,186.0	328.1
Net income+	228	612	970.7	325.7
Net income per capita	122	289	435	256.5
Net income from agriculture+	70.5	150.0	168.0	138.3
Net income from manufacture+	26.4	78.0	143.2	442.4
Estimated value of building permits issued+	7.8	39.6	56.3	621.8
Bank assets+	93.4	362.0	391.1	318.7
Bank debits+	73.1	211.7	355.9	386.8
Bank deposits, including Government+	76.4	273.6	300.6	293.4
Private bank deposits+	49.2	160	212.8	332.5
Private savings+	17.4	50.2	70.9	307.5
Bank loans+	31.1	124.8	194.6	525.7
Value of shipments to & from mainland U.S.+	191.4	523.0	801.0	318.5
External passenger traffic	51,755	253,728	561,805	985.5
Revenue & receipts of Commonwealth Govt., exclude grants+	$25,952	$89,171	$139,470	437.4
Income tax collections+	2.2	26.4	33.5	1,422.7
Enrollment in public schools	286,113	377,349	505,151	76.6
Electricity generated, million kw-hr	161.2	451.2	853.2	429.3
Legal debt-incurring margin of Commonwealth Govt.+	$ 31,180	$ 40,215	$ 87,531	180.7
Assessed value of property+	311,803	402,153	875,313	180.7

*Decennial Census.

+All dollars in millions except Net income per capita.

Sources: Division of Statistics; Bureau of the Budget; Statistical Yearbook, Economic Development Administration, Annual Report, Secretary of Finance; Planning Board; Department of Public Works.

Table 2. Puerto Rico Water Resources Authority
Quarter Ended December 31

	1954	1953
Total assets	$158,314,000	$147,155,000
Electric plant in service	111,798,000	99,837,000
Construction work in progress	17,783,000	16,359,000
Total revenues	4,972,000	4,585,000
Net revenues after current expenses	2,150,000	2,306,000
Number of customers	236,789	219,942
Sales, 1,000 kw-hr	185,843	171,669
Debt Service Coverage		
Balance for debt service 12 mo. ended 12-31-54	$8,872,600	
Maximum annual debt service, fiscal year 1964	4,971,236	
Times earned	1.78	

Table 3. Puerto Rico Aqueduct and Sewer Authority
Quarter Ended December 31

	1954	1953
Total assets	$81,816,000	$75,324,000
Utility plant in service	65,024,000	59,329,000
Construction work in progress	7,470,000	8,528,000
Total revenues	1,631,000	1,545,000
Net revenues after current expenses	886,000	801,000
Number of customers	168,540	155,879
Water sold, 1,000 cubic meters	14,990	14,555
Debt Service Coverage		
Balance for debt service 12 mo. ended 12-31-54	$3,475,583	
Maximum annual debt service, fiscal year 1975	1,294,595	
Times earned	2,68	

from the mainland, to within five and a half hours from New York and less than four hours from Miami.

The status of Puerto Rico itself is not always thoroughly understood by investors on the mainland of the United States. Puerto Rico's status as a Commonwealth is unique. It is based on a compact with Congress known as the Federal Relations Act.

PUERTO RICO A COMMONWEALTH

Puerto Rico is not a state nor is it a territorial possession. It is a Commonwealth linked with the United States through common citizenship, a common monetary system, free trade, service in the Armed Forces, and enforcement in Puerto Rico of the applicable provisions of the Federal Constitution and the Federal laws. However, Federal taxes do not apply in Puerto Rico, nor can residents of Puerto Rico vote in mainland elections or be represented in Congress other than by a nonvoting resident commissioner seated in the House of Representatives.

For many years a one-sided agricultural economy and a scarcity of health and educational facilities retarded Puerto Rico. In recent years, however, bankers, businessmen, and public officials have co-ordinated a gigantic effort to improve the economy. Industrial expansion was given added impetus through adoption of the Industrial Incentive Act of 1954.

It is now possible to start a new industry for most types of manufacturing and operate ten full years without paying any income tax in Puerto Rico. In the last few years approximately 300 industrial companies have established plants in Puerto Rico. Industries range from textiles and food processing to electronics and oil refineries.

The improvement in the over-all picture resulting from these efforts is reflected in the significant facts on the economy of the Commonwealth, shown in Table 1.

The most recent Puerto Rican borrowing in the mainland market occurred last December when the Water Resources Authority sold an issue of $12,500,000 revenue bonds, due 1957 to 1990, at an interest cost basis of 3.399%. Revenues of this Authority for the 1954–55 fiscal year are estimated at $19,669,000, compared with $17,825,369 in 1953–54. Revenues for the most recent quarter, number of customers, debt service coverage, and related statistics concerning the Puerto Rico Water Resources Authority are shown in Table 2.

AQUEDUCT AND SEWER AUTHORITY

The Puerto Rico Aqueduct and Sewer Authority, which has done no bond borrowing on the mainland in recent years, is expected to do some long-term financing to the extent of around $10 million during the current year. To keep its water supply and sewer facilities in pace with Puerto Rico's rapid growth in industrial activity, population, and economic expansion, the Commonwealth ten years ago embarked on a systematic program now nearing completion.

This construction program involves a total investment of some $48 million, but most of the financing incident to this is from current revenues and grants from the Commonwealth general fund. Revenues for the most recent quarter, number of customers, debt service coverage, and related statistics concerning the Puerto Rico Aqueduct and Sewer Authority are shown in Table 3.

Today, all the 76 communities in Puerto Rico have continuous water service. The sewer system in Puerto Rico has also been improved and extended. Already 64 of its cities and towns have adequate modern sewage-disposal service. Additional facilities now under construction include a disposal plant for San Juan, a large, new filtration plant for Mayaguez, and a program that will double the water supply of the City of Ponce.

New water-transmission pipe lines, filtration plants, and distribution tanks are also being provided for the needs of smaller communities.

This progress is indicative of the awareness of Puerto Rico of the importance of health in the over-all economy of the island. Puerto Rico now devotes half of the Commonwealth budget to health and education.

As Table 1 shows, the death rate has been reduced to 7.6 per 1,000 population annually, compared with 18 per 1,000 population in 1940. In that same period, average life expectancy increased from 46 to 61 years. Health centers are now located in virtually every community.

Public education has likewise made much progress. Enrollment in the public schools now exceeds 500,000, or nearly one fifth of the entire population. This is nearly double the figure of 286,113 for 1940.

These are among the reasons why investors will find new situations worthy of note and new industrial advantages in Puerto Rico. Puerto Rican bonds will become more and more desirable and should be of interest to investors.

* * *

February 11, 1834 . . . Stock Exchange meeting against Jackson's removal of the deposits.

February 1, 1843 . . . Rents so high in New York City that "all the good tenants are going away."—*Diary of Philip Hone*

1845—August . . . Efforts to dispossess tenants who refused to pay rents resulted in sheriff being fired upon.

November 27, 1835 . . . "Living in New York is exorbitantly dear . . . $30 for a ton of hay; butter 2 shillings fourpence per pound.

November 18, 1837 . . . "Never yet have I known so dear a market as the Fulton was this morning . . . Beef at 18 cents per pound."

General Washington at one time lived in a house on the corner of Cherry Street and Franklin Square.

The first telephones were introduced on the Exchange in November of 1878.

1885 . . . Department of unlisted securities began operations in New York.

First suggestion to establish a Clearing House in New York made by Albert Gallatin in 1841.—*Hardenbrook*

Dynamics in 1954

Merged Consolidated Vultee Aircraft into the Corporation as a Division. ***Launched*** "USS Nautilus," world's first atomic submarine. ***Constructed*** an atomic reactor for the U. S. Air Force. ***Flew*** the Navy's XFY-1 "Pogo-Stick" vertically and horizontally. ***Started*** production of Air Force F-102A supersonic all-weather jet interceptor. ***Received*** Canadian Government contract for new 4-engine Maritime Reconnaissance aircraft.

RESULTS IN BRIEF	**1954**	**1953**(1)
Net Sales	$ 648,641,241	$ 577,347,511
Profit Before Taxes	43,895,472	28,018,866
Net Earnings	20,795,472	13,193,866 (2)
Earnings Per Common Share(3)	$4.72	$3.27
Cash Dividends	7,438,453	6,738,945
Working Capital	67,317,700	62,459,971
Net Worth	88,729,634	74,471,555
Backlog	1,007,800,000	902,500,000

(1) ON A PRO FORMA BASIS, INCLUDING CONSOLIDATED VULTEE AIRCRAFT CORPORATION. (2) EXCLUDING EXTRAORDINARY INCOME. (3) ADJUSTED TO GIVE EFFECT TO 2-FOR-1 STOCK SPLIT-UP ON MARCH 10, 1955.

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A Defense of Orthodoxy in the Analysis of War Finance

GENE L. ERION

AN ATTACK ON ORTHODOXY may lead to either of two desirable results. It may take us through the wilderness to the promised land of more fruitful effort. Or it may strengthen us in our conviction of the usefulness of what has come to be an habitual pattern of reaction.

It is the latter service, chiefly, that Dr. John D. Garwood has rendered us in his "A Commonsense Explanation of War Finance," published in THE ANALYSTS JOURNAL of August 1954. Dr. Garwood has advanced in that article two main lines of attack on what has come to be a part of the generally accepted analysis of war finance. These two lines are concisely stated: "It is my contention that current thought tends to overestimate the burden that a warring generation bears, and, second, it is my contention that it is likely that a future generation may bear a good portion of the *money costs* incurred by financing a war through Government borrowing" (pages 84–85).

DR. GARWOOD'S CONTENTION

In support of his first contention, Dr. Garwood produces some of the evidence that World War II served as a large-scale, deficit-financed public works program—a program that produced employment to a point that could even be considered in excess of full employment, and, in some respects, a higher standard of living in the United States than was enjoyed in the depression-plagued '30's preceding that war. The evidence cannot be denied, of course, but the implications of Dr. Garwood's interpretation may still leave one unhappy. For instance, the statement is made, " . . . given unemployment of any proportion at the outset of the struggle, it would seem that the sacrifice of the war generation would be less than many students in the past thought possible" (page 87).

IDLE RESOURCES COST OF DEPRESSION

It is true, of course, that the United States entered World War II activity from the situation of having much unused productive capacity, in terms both of men and of plant. It also is true that the use of that idle capacity, if no other use could possibly have been found, consequently represented no sacrifice of any alternative use, other than that of idleness, for the Nation. In fact, to the extent that some of the idle capacity was used to increase the output of civilian goods and services, wartime activity actually represented a gain in terms of the level of living.

Is it either necessary or desirable, however, to make the assumption that only World War II could have induced full utilization of the Nation's productive capacity? Such an assumption implies a severe criticism of our capitalistic economic system, and of the culture of which it is a part. Certainly the past record of capitalism does not read entirely against such an assumption. The history of recurrent depressions in capitalistic economies affords all too ample testimony to the wasting of resources through idleness.

Several observations seem relevant, however, before the assumption of the inevitability of depressions in peacetime capitalism can be accepted. One is that the historical record also contains evidence of periods of prosperity under capitalism, periods that cannot be wholly or even chiefly ascribed to the effects of war. Another is that a generation of professional economists, both practicing and academic (and including Dr. Garwood), has received the imprint of the tragedy of the 1930's and of the analyses that the period produced through the writings of Alvin H. Hansen, J. M. Keynes, G. H. Habeler, Henry C. Simons, H. Gordon Hayes, Seymour E. Harris, and Abba P. Lerner, to mention a few.

LEARN FROM PAST MISTAKES

Though it is an old saying that history repeats itself, it is probably more true and more important that the intelligence of man enables him to learn from past mistakes. If that is so, the mistakes that brought and helped prolong the debacle of the 1930's should also have brought "a powerful lot of learning." As a matter of fact, a scanning of some of the introductory textbooks available in economics indicates that neither the implications of idle resources nor the policies that can contribute to the avoidance of such waste have been neglected.

Furthermore, it appears that the learning has not been entirely academic. The political campaign of 1954 adequately attests to the fact that both major parties are exceedingly sensitive to any charge, or opportunity to advance the charge, of responsibility for any serious degree of unemployment.

Yet another observation seems relevant with respect to the assumption of the inevitability of recurrent unemployment in a capitalistic economy, but it is one that must be made and received with caution. Permit me to make myself absolutely clear on this point: It is my contention that Dr. Garwood *unintentionally* gives support to the Communist line of thought by his interpretation of the facts.

Marx, of course, was the foremost exponent of the idea that an industrial reserve army of unemployed is an inevitable feature of capitalism. Lenin contributed the refinement that capitalistic imperialism and its necessary concomitant of war are inescapable outgrowths of the same capitalistic processes that produce the surplus army of unemployed.

From the foregoing it would seem neither desirable nor necessary to assume that only World War II could have induced full utilization of the Nation's productive capacity. An obvious alternative to Dr. Garwood's procedure lies in the more usual course of estimating the costs both of the great depression and of World War II, against what would have been available for our level of living had we had full production and employment under peacetime conditions, or—to put the point another way—had we had public works that contributed to our level of living and that were financed by deficits on the same scale as those of World War II.

Tangential, but related, to the preceding arguments are two further points. One is that Dr. Garwood's evidence is incomplete, even if his first contention were granted, concerning the cost of World War II.

Admittedly, it probably is impossible to weigh all the credits and debits of participation in any war. If the Nation had not undergone the costs of resisting aggression, for instance, what greater costs might have been imposed? Will the impetus given the development of nuclear fission and fusion prove to be a Frankenstein's monster, or one of mankind's greater blessings?

These questions are of far too great magnitude for me to go into further than to raise them. It does not seem presumptuous, however, to suggest that Dr. Garwood's references to workers' liking for overtime pay in wartime and the elimination of unemployment leave an unnecessarily incomplete picture.

POSSIBLE COST OF MORE-THAN-FULL EMPLOYMENT

Actually, the wartime situation was one of more-than-full employment. True, as shown by the data used by Dr. Garwood, unemployment was reduced from an average of 9,480,000 in 1939 to 670,000 in 1944.

It is also true, however, that, in 1939, the labor force, including those in the Armed Forces, comprised only 55.5% of the population 14 years of age and over, whereas, by 1944, the percentage had been increased to 62.4, and in 1946 it had been reduced again to 56.6. Between 1939 and 1944, the population 14 years of age and over increased some 5.6 million, and unemployment decreased some 8.8 million, or a total of 14.4 million; yet in the same period employment in the Armed Forces and in civilian occupations increased by approximately 19.4 million.

About five million were added to the labor force, then, in part by drawing in both young and old who would not have been working had prior conditions continued, but chiefly by inducing more women into employment. Of the 9.2 million increase in civilian employment between April 1940, and July 1944, 8.0 million were women. In that period, female employment increased from 25.8% of total employment to 35.8%.

Perhaps many of those who were drawn into employment that they would not have sought, or found, in peacetime did not feel that they were making a great, if any, sacrifice. Yet, is the individual's reaction to the situation a safe index of the social cost? Even though many parents and children were glad to earn incomes that might not otherwise have been available, and to spend less time at home, was there—and has there been—no offsetting social cost in the relaxing of parental attention to children? More than one sociologist has suggested the possibility of a sizable debit on the ledger in this connection.

If nothing else, it may be suggested that preoccupation with the costs of unemployment should not entirely distract us from the costs of overemployment.

The second tangential thought may perhaps best be expressed as a cautioning against the assumption that the United States, if faced with another war, will have idle resources and the memory of a depression to make the transition to a wartime economy an easier task. Such an assumption is neither explicit nor implicit in Dr. Garwood's article; yet it might be inferred. Reference to the difference in the situation, upon our entrance into World War II and into the Korean War (what if it had been World War III?), should suffice to illustrate the importance of this point. In 1940, there were 8.1 million unemployed who comprised 14.5% of the total civilian labor force, but, in 1950, there were only 3.1 million unemployed, and they were only 4.8% of the total civilian labor force.

MONEY COSTS VIRTUALLY MEANINGLESS

What of Dr. Garwood's second major contention that ". . . a future generation may bear a good portion of the money costs incurred by financing a war through Government borrowing . . ."? (pages 84–85). His reasoning in support of this contention may be summarized as follows:

Much of the Federal debt in wartime—about one third in World War II—has been bought by the commercial banks and the Federal Reserve banks. The means of payment used by the banks has been bank promises-to-pay: either deposits to the credit of the United States Government or Federal Reserve Notes.

These deposits and notes, following a popular definition of *money*, have comprised an increase in the supply of money. Thus, Dr. Garwood reaches the conclusion that, if the banking system had excess reserves, so that lending to other, nongovernment borrowers did not have to be curtailed, ". . . the present generation made no sacrifice in providing the Government with this purchasing power" (page 87).

On the other hand, if any of the Federal debt held by the banks is to be retired in the future, it must be through using tax revenues to buy back that debt. This process would reduce the deposits and currency of private nonbank owners; thereby reduce bank liabilities; also reduce bank assets consisting of U. S. Government securities; but also increase bank excess reserves, or potential lending capacity.

The increase in the potential lending capacity might or might not be used; and, to the extent that it were not, the means of payment—coins, currency, and demand deposits—available to the public would be reduced. ". . . the future generation must bear the tax to repay the loans, which in turn is used to cancel a bond and a bank deposit, and increase the banking system's capacity to make further loans. It would seem that the future generation has borne the cost of the financing" (page 87).

What is the meaning of the term *money costs* used by Dr. Garwood? In his context, it would appear to have no meaning, for he refers to an entire generation. While *money costs* are meaningful for purposes of comparison between individuals and groups at a given time, or during a given period, they are of no use to a Nation, except as they are related to prices and to the level of production.

Or, to put the matter in another way, whereas assets, including money, are difficult to obtain for most individuals and firms, yet, for a modern Nation as a whole, money is one of its least expensive products. In fact, it is the relative cheapness of coins, currency, and especially bank credit—for the economy as a whole—that makes the modern economy so vulnerable to inflation in periods of war. An increase in the supply of money—or means of payment—is all too easy to come by, so far as cost is concerned.

Not only is money relatively cheap to produce, but it is also a product extremely subject to decreasing costs. That is, the cost for each unit of output—a dollar's worth, say—decreases as the total produced increases.

The difference in cost in producing $1,000 bills is indeed negligible compared with producing an equal number of $10 bills. Likewise, so long as the credit of the borrower is established (a matter of little importance when the U. S. Government is borrowing) and adequate excess reserves are present, it cannot make much difference in costs to a commercial bank whether it buys $1,000, $10,000, or $100,000 worth of bonds with its deposit liability.

PURCHASING POWER AND SACRIFICE

This leads, logically, to another error in Dr. Garwood's presentation. When he writes that the current generation makes ". . . no sacrifice in providing the Government with this purchasing power . . ." (page 87) when the Government sells its securities to the commercial banks which pay by increasing the total of the demand deposits for which they are liable, he either departs from the customary technical use of the term *purchasing power* or he fails to carry the analysis far enough.

Customarily when economists use the term *purchasing power* they refer to the exchange value of a unit of money, such purchasing power being a function of prices. Considering the context in which he uses the term, it seems likely that Dr. Garwood was referring to what is customarily termed *means of payment* or *money*.

Let us consider the problem, then, from all three angles: purchasing power, means of payment, and sacrifice. Let us hypothesize the following: (1) production is maximized; (2) Government has been buying one third of output, the purchases financed by tax revenues; (3) the Government then increases its buying to two thirds of output, the increased buying being financed by an increase in the means of payment, through the sale of bonds to banks. A simple model illustrates what is involved:

Period One

Total output	300 units
Government purchases	$100 spent for 100 units
Private purchases	$200 spent for 200 units
Average price per unit purchased	$1

Period Two

Total output	300 units
Government purchases	$400 spent for 200 units
Private purchases	$200 spent for 100 units
Average price per unit purchases	$2

The increase in means of payment available to the Government is virtually costless, indeed; but *it cannot be said that there is no cost, no sacrifice* if, for instance, the prosecution of a war cuts in half the output available for civilian consumption. Neither can it be said that there is no loss in purchasing power, in the customary sense, if there is an inflationary price rise.

(In World War II, of course, there was relatively little inflationary price rise, the consumers' price index being only 26% higher in 1945 than it was in 1940. On the other hand, personal saving averaged 18.3% of personal income in the war years 1941–45, compared with 3.7% in 1939 and 5.0% in 1948. Had the percentage saved not been so high, other things being equal, the rise in prices would have been greater. Data from the Department of Commerce and the Bureau of Labor Statistics as cited by the Conference Board.)

Furthermore, whether or not excess reserves are available when the Government borrows from the banks is virtually irrelevant, for two reasons:

1. If the Government wants to borrow without causing banks to curtail loans to other borrowers, it can see to it that the reserves needed are made available to the banks. If, on the other hand, there are excess reserves, but it wants to restrain the use of resources that an increase in private borrowing would finance, it can do so by such methods as the allocating of materials and the regulating of consumer credit terms.
2. What is significant, then, is not whether excess reserves are available, but whether there are unused productive resources. If there is idle capacity, the Government may be able to buy more without civilians buying less.

It is exactly on this point, of course, that Dr. Garwood makes his argument that the cost of war may be overstated. As is reasoned above, however, this should be considered, not as reducing the cost of the war, but as indicating the cost of the depression that made the productive resources idle.

DEBT RETIREMENT MAY BE BENEFICIAL OR HARMFUL

Let us turn, now, to the years following a war. If tax revenues are used to retire bank-held Federal debt, the effect is potentially deflationary. The total of demand deposits is reduced, and excess reserves are increased.

Whether private borrowing replaces Government borrowing, and the level of demand deposits is restored to its former height, is most likely to depend on business expectations at the time. If there were an inflation in progress, with full employment and production, and if reserve requirements were concurrently increased, the effect would be to decrease the supply of money and to reduce the inflationary pressures. Such a reduction of inflationary pressures could not be considered as involving a cost to the current generation. Rather, it would be an advantage in its reducing of the disruptive effects of inflation.

On the other hand, if economic conditions were those of a depression, with unemployment, underproduction, and poor profit prospects, the effect of retiring bank-held Federal debt by using tax revenues could be expected to reduce private spending and to lead to a further decline in production and employment. Under such conditions, it would be most unlikely that private borrowing would replace the Government borrowing, and the decrease in the Federal debt would then lead merely to a futile increase in the banks' excess reserves. It could then be said, quite justifiably, that the reduction in Federal debt was quite costly to the current generation in lost production and employment.

A very pertinent question still remains, however, to be asked. In either case, should the retirement of bank-held Federal debt be attributed to the financing of the war through the sale of bonds to banks; or should it be attributed to that particular use of postwar tax revenues?

Granted that a major war is likely to increase the national debt held by banks, and granted that tax revenues can be used to retire national debt only if such debt exists, *it does not follow that the existence of national debt requires the use of tax revenues to retire it at some specific future date.* Furthermore, it may be conceded that the financing of a war by tax revenues, rather than through the sale of bonds to banks which increase the money supply, would be the less inflationary and more sensible course.

Granting that, however, it still seems reasonable to contend that any blame for the use of tax revenues to retire bank-held Federal debt, if it makes a depression still worse, must fall upon the generation that follows such a ridiculous fiscal policy. Said generation could blame only itself, could not, by any reasonable criteria, take refuge in the earlier error of the wartime generation. Likewise, certainly, only the postwar generation would deserve any credit if it used tax revenues to reduce bank-held Federal debt in a period of inflation.

Although reasoning by analogy may be dangerous, the possibilities that bank-held national debt presents to a current generation suggest a comparison to the possibilities created by a gun and bullets given by a father to his son. If, afterwards, the son uses the gun to shoot off an arm, is the fault the father's? If, on the other hand, the son uses the gun to prevent an attack by a mountain lion, should credit be given the father? My own answer is that the father deserves blame or credit only for the training that he gave the son in the use of the rifle, but that he should receive neither blame nor credit if the son's behavior is contrary to the training.

By the same token, if a depression-wartime generation bequeaths a bank-held national debt—a loaded rifle—to future generations, it is culpable only if it does not also bequeath proper instructions concerning its proper use. Dr. Garwood's article and the present criticisms, it may be hoped, will make a contribution to the more enlightened use of bank-held Federal debt by this and succeeding generations.

1954 *a Continuing Record of Demand for*

AE *Ceramic Wall and Floor Tile*

HIGHLIGHTS

- **The Company operated at capacity throughout 1954.**
- **Dollar sales increased 5% over the previous year.**
- **Earnings set a record of $1.46 per share.**
- **Dividends, paid regularly, were increased to 70 cents a share.**
- **The year 1954 saw expansion in AE's research staff and facilities.**

Incoming orders for later delivery exceed current shipments. Backlog of orders at beginning of 1955 amounted to four months' production.

AE products are used in both the construction and renovation of a wide variety of buildings: homes, dairy farms, factories, office and municipal buildings, and stores. As a result of the growing demands of the country's expanding economy—new school, hospital and church construction provides additional markets for the Company's ceramic tile products.

America's Oldest Name in Tile

AMERICAN ENCAUSTIC TILING COMPANY, INC.

LANSDALE • PENNSYLVANIA

The Company's operations are summarized in the 1954 Annual Report. Copies are available on request.

SOHIO'S NEW DEVELOPMENTS...

KEY TO FUTURE GROWTH

In 1954, Sohio made important progress in its planned program to strengthen the Company's established position and build a base for future growth in sales and earnings. Highlighted here are three of the significant developments of 1954.

NEW PRODUCTS

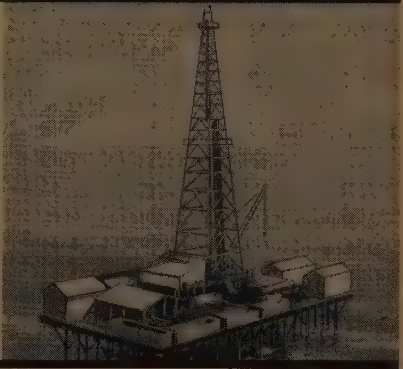
Boron Gasoline. An important factor which helped to strengthen Sohio's marketing position was the introduction in September 1954 of Sohio Boron Supreme. This new motor fuel discovery, the product of years of research, makes use of the non-metallic element boron and aviation anti-knock fluid to establish new standards of gasoline performance. Boron gasoline received an immediate and enthusiastic response from Ohio motorists. Since then, the increase in Sohio's sales of gasoline has exceeded the increase in consumption in our marketing area and the percentage of sales of premium grade gasoline has grown substantially.

NEW ACTIVITIES

Petrochemicals. In a major diversification step, Sohio will begin the manufacture and sale of petrochemical products early next year. Construction of a $17 million petrochemical manufacturing plant began last year at Lima, Ohio. This centrally-located plant will produce anhydrous ammonia, urea, nitric acid and nitrogen solutions, products important as agricultural fertilizers and in the manufacture of plastics and other industrial materials. This project will further diversify the Company's operations and should contribute significantly to profits in the years ahead.

NEW AREAS

Offshore Drilling. An important part of Sohio's program of expansion is the finding and development of new sources of petroleum for the future. In 1954, Sohio invested $4 million in the Tidelands of the Gulf of Mexico, an area we believe offers favorable opportunities for additions to our crude oil and natural gas reserves. In participation with three other companies, we acquired interests in seven offshore tracts. Drilling of the first offshore well is now in progress. Large expenditures for exploratory drilling and development over several years will be required before an accurate appraisal of this venture can be made.



1954 IN REVIEW

	1954	*1953*
Sales and operating revenue	$304,371,833	$317,179,566
Earnings	$18,527,085	$21,217,675
Earnings per share of common stock	$4.41	$5.08
Dividends per share of common stock	$2.40	$2.40
Capital expenditures	$37,585,520	$37,010,447

We will be happy to send you a copy of our 1954 Annual Report.
Write Sohio, Midland Building, Cleveland, Ohio.

THE STANDARD OIL COMPANY
(AN OHIO CORPORATION)
MIDLAND BUILDING • CLEVELAND 15, OHIO

Highlights
FROM OUR 1954 ANNUAL REPORT

	1954	1953	1952	1951	1950
Operating Revenues	**$149,472,568**	$156,643,985	$160,584,277	$149,337,054	$135,536,777
Operating Expenses	**$109,128,668**	$112,836,072	$116,886,004	$111,211,467	$ 98,822,143
Operating Ratio (Expenses to Revenues)	**73.01%**	72.03%	72.79%	74.47%	72.91%
Taxes	**$ 14,851,838**	$ 17,793,534	$ 18,319,327	$ 16,714,694	$ 16,782,998
Income Available for Fixed and Contingent Charges	**$ 23,989,328**	$ 24,851,281	$ 23,930,805	$ 20,052,275	$ 18,469,252
Fixed and Contingent Charges	**$ 3,856,758**(a)	$ 3,943,448(a)	$ 3,942,200	$ 4,061,561	$ 4,294,103
Times Charges Earned	**6.22**	6.30	6.07	4.94	4.30
Net Income after Charges	**$ 20,132,570**	$ 20,907,833	$ 19,988,605	$ 15,990,714	$ 14,175,149
Net Income Per Share of Common Stock (b)	**$ 8.51**(c)	$ 8.90(c)	$ 8.19(c)	$ 7.17(c)	$ 6.32
Income Applied to:					
Capital Fund	(a)	(a)	(a)	$ 3,067,454	$ 2,704,759
Sinking Funds	**$ 1,703,750**	$ 1,697,300	$ 770,792	$ 566,608	$ 262,483
Balance of Income Transferred to Earned Surplus	**$ 18,428,820**	$ 19,210,533	$ 19,217,813	$ 12,356,652	$ 11,207,907
Shares of Capital Stock Outstanding at End of Year:					
Preferred Stock	—	—	Retired	150,000	150,000
Common Stock (b)	**2,365,057**	2,349,475	2,439,475	2,125,000	2,125,000
Dividends Per Share Paid:					
Preferred Stock	**None**	None	$ 5.00	$ 5.00	$ 5.00
Common Stock (giving effect to stock split)	**$ 3.80**	$ 3.00	$ 2.10	$ 1.70	$ 1.20
Common Stockholders at End of Year	**6,306**	5,672	5,302	4,205	4,260
Tons of Revenue Freight Hauled (Thousands)	**45,298**	43,744	43,896	43,050	39,723
Revenue Ton Miles (Thousands)	**8,756,928**	8,787,838	9,269,600	9,140,307	8,262,713
Average Revenue Per Ton Mile	**$ .0142**	$ .0148	$ .0144	$ .0135	$ .0133
Passengers Carried	**1,079,244**	1,206,164	1,320,370	1,465,186	1,423,636
Passengers Carried One Mile (Thousands)	**450,142**	500,413	551,133	568,031	573,680
Revenue Per Passenger Mile	**$ .0266**	$ .0275	$ .0276	$ .0257	$ .0245
Average Number of Employees	**15,309**	16,402	17,048	17,811	17,400
Total All Wages	**$ 70,392,637**	$ 72,889,512	$ 75,362,083	$ 72,645,335	$ 63,679,362
Miles of Road Operated at End of Year	**4,064**	4,078	4,080	4,145	4,146

(a) Contingent Interest and Capital Fund requirements not applicable to these years by reason of satisfaction of General Mortgage in 1952.

(b) Based on shares outstanding as of December 31. Years prior to 1953 restated to reflect effect of the split-up of Common Stock on the basis of 2½ shares of $40 par value for each share without par value (stated value $100), which became effective July 23, 1953. The earnings per share for 1951 and prior years are after providing for dividends on Preferred Stock, none of which was outstanding on December 31, 1952, or thereafter.

(c) Taking accelerated amortization on emergency projects covered by Certificates of Necessity as deductions for Federal Income tax purposes reduced the accruals for Federal Income taxes in the years 1954, 1953, 1952 and 1951 by $4,950,000, $4,280,000, $3,375,000 and $1,885,000, respectively. These tax reductions were equivalent, per share of Common Stock, as restated, in the years 1954, 1953, 1952 and 1951 to $2.09, $1.82, $1.38 and $0.89, respectively, of the earnings per share of Common Stock shown in the above tabulation.

The 1954 Report has been distributed to Seaboard's stockholders and securityholders. A copy may be obtained by writing to:

W. F. CUMMINGS, Secretary
Seaboard Air Line Railroad Company
Norfolk 10, Va.

SEABOARD AIR LINE RAILROAD COMPANY

Investing in Uranium

MAX MALIN

When that pioneer economic planner, Joseph, was working out his projects for an ever-normal Egypt, he did not have the advantage of that very remarkable modern economic invention, the ever-larger deficit. Even worse, he did not have the good luck to find his seven bad years staggered, industry by industry, a la Slichter. Result: Joseph's achievements were so transient that soon came a Pharoah who knew not Joseph.

In these modern times, we are blessed not only with the deficit but also with segmented cycles, resembling a broken-up earthworm, each separate piece wriggling according to its own fundamental frequency. But most potent of the new wonders is the discovery of growth, which is venerated by those known as investors, and more often persons known as speculators. While the deficit and the segmented cycles have aimed at freedom from depression, growth is providing freedom from gravity.

THE ROMANCE OF ATOMIC INDUSTRY

I cannot defend the foregoing as being the literal truth, for it certainly is not the complete truth. As we worship growth, we are also respectful of security if we are investors, or of volatility if we are speculators.

The early detection of growth potential is now a basic function of the security analyst. It is not enough ordinarily to discover which industries and companies are keeping up with the growth of the population.

Indeed, under our increasingly high standards, some of us are likely to regard as stodgy and uninteresting even those companies that add to their normal secular growth only incremental contributions made possible by efficiency of operation and improved competitive position. Increasingly our expectation of what growth can accomplish turns us to the industries which have "romance," that is, which are believed ready to undergo the degree of growth that characterizes the development of a new major industry.

In the past dozen years, atomic scientists and engineers took an unimportant, scarcely known chemical element and

1. Revolutionized warfare and nullified the defensive security of every world power.
2. Revolutionized industrial and medical research, providing new materials, new processes, and a vast capital of new knowledge which is already employed in developing still more knowledge.
3. Revolutionized the outlook of the world's population as to what its future can be.

With this came the emergence of a major new industry in the United States. Many billions of dollars have been invested in atomic industry, and more than one million persons are now primarily engaged in it.

This is yet the beginning. This is still before the advent of commercial electricity from atomic energy; before the advent (except for the *Nautilus*) of the atomic engine for ships and airplanes; before the commercial application of atomic energy to the treatment of foods, of plastics, and of wastes; before the manufacture of portable atomic power plants for use throughout the power-hungry areas of the world.

There is nothing about atomic energy's future that is difficult to believe—even when it comes from the Russians, who talk of changing the polar climate, reclaiming the desert, and moving mountains. Under this romantic enchantment, the very word "atomic"—or any word that is closely related, such as "uranium," or even "lithium," "zirconium," "beryllium"—acts like a magnet to the general public. The outstanding merchandising success of the Atomic Development Fund is an example of how powerful that magnet is in attracting the public, many of whom would not know a fission from a fusion.

TOO LITTLE CONSTRUCTIVE GUIDANCE

In the feverish search for means to participate in the development of this new industry, there has been much more caveat than constructive guidance. The responsible elements of the investment community have raised alarms over penny stocks, over tipsters, over uranium mines without uranium, and over situations where options and other devices threaten to syphon possible profits away from the shareholder. It is hard to believe that more warning could have been provided.

On the other hand, numbers of investors have steered away not only from the dubious penny stocks but from sound, investment-caliber issues as well. Even now, some investment houses are expressing negative opinions on top-flight uranium stocks which they know practically not at all. Such companies as Pronto, Rix Athabasca, and Algom are not even recognizable names to some otherwise sophisticated houses to whom investors have a right to turn for reliable information and guidance.

Is it enough to advise against penny stocks as a generality or to suggest General Electric or Procter and Gamble as "safe" atomic stocks? The public's patronage of tipsters and promoters suggests that a more constructive approach is necessary. There is need of considerably more examination of the facts, and conscientious appraisal of investment values. Let us remove some of the emotion from the analysis of these securities.

SOME PERSPECTIVE

Atomic energy is not a gadget or a craze like chlorophyll. If this is an atomic age, it is also an air age, a wonder chemical age, a plastic age, a light-metals age, an alloys age, a supersonic and ultrasonic age, and an electronics age. We are in more and more "ages" simultaneously.

In the telescoped timetable of the present, a breadth of perception and a habit of reflection are indispensable to the investor looking for growth. He need not really go "all out" for any particular industry; he always has several new ones from which to choose. The industrial revolution has been succeeded by the technological spiral.

THE CASE FOR A "SAFE" APPROACH

This leads to a conclusion concerning a "safe" way of investing in atomic developments. We have arrived at the point where the classification of major companies according to industry groups is becoming obsolete. Directly or indirectly, companies are involved in all of our "ages." The complexities and interrelations of science and technology, plus the aggressiveness of management to find new fields to grow into, have made industrial giants participants in every major growing phase of the economy.

To look at the matter another way, note that, in the atomic energy pamphlets issued by investment houses and mutual funds, mention is frequently made of large companies engaged in every form of industry. About the only kind of company that does not appear on such lists is the company that is principally in the uranium mining industry.

Some of this country's most respected investment houses are implying that the safe way to invest in atomic energy is to invest in the American economy broadly. If atomic energy will be a big thing for the economy, certainly big companies will benefit as they will from almost everything else. They will have new markets for existing products and will have new products based on new materials and techniques.

Robert M. Hutchins, when he was chancellor of the University of Chicago, expressed the conviction that any large company that hopes still to be in business twenty-five years from now should be getting to know about atomic energy right now. They should also be getting to know about developments in every other new field, whether titanium or automatic controls.

The business structure of the United States is now such that, for investment purposes, the security analyst might be warranted in giving up the close scrutiny of technological developments as such and in relying instead on the theory that, whatever important changes come about, du Pont and General Electric and the other industrial giants will be among the authors and among the inevitable and principal beneficiaries.

WHAT DO URANIUM SECURITIES OFFER?

Uranium mining is not likely to become a major industry. If and when uranium were mined in quantities whose energy content would be comparable with that of the present coal industry, its dollar value would be much smaller than that of our present coal output. That is what uranium has to offer: much lower fuel costs for a given amount of energy. Nevertheless, an investment in a sound uranium mining company offers an immediate opportunity to participate directly and with concentration in a fundamental activity on which atomic energy depends.

Uranium is a classic example of a once practically worthless material that has suddenly been made valuable by research. As is true of any commodity for which demand is suddenly increased beyond available supply, the price that uranium commands is subject to possible deterioration, as new sources of supply are brought in at a faster rate than growing demand may take it off the market.

However, there is no danger of that happening before 1962. Government policy has set a floor under prices, regardless of the amount of uranium produced and of the amount actually needed for atomic weapons and industrial uses.

ATTRACTIVENESS FOR SPECULATION

The attractiveness of uranium mining shares for speculation is based on the possibility that a company with no assets but currently useless land or mining claims may suddenly find a valuable deposit, thus multiplying the value of the assets. However, it is obvious that, for investment, no company can be eligible for consideration that has not already largely discounted the possibility of such dramatic gains.

What the investor must be confident about is that the company he picks will have a profitable operation mining the ore that is already known to be present on the property. The possibilities that the company may discover bigger and better orebodies on its properties and that it may acquire other good properties are "sweeteners" that are subsidiary to the first consideration, unless the objective is frankly speculation.

INVESTMENT CHARACTERISTICS OF URANIUM SECURITIES

Eliminated from discussion herein are the uranium company that is not known to have uranium in large quantities and usable grades, the company that has issued 30 million shares, and the company whose chief asset is a high-sounding name. Often the same company fits all three of these rejected categories.

Uranium mining companies meriting investment attention can be grouped into the following categories:

1. Companies whose principal business is mining uranium ores and which are currently doing so on a substantial and profitable basis.
2. Companies which have been principally engaged in exploration and development but which are now readying to begin substantial production on what appears to be a profitable basis.
3. Companies which are still engaged in proving up reserves on their properties and which have already had reliable indications of good quantities and suitable grades of ore.
4. Companies holding substantial interests (in relation to their own earnings and capitalization) in one of the first three categories.
5. Companies whose basic production is or has been in some other ore but which are now heavily involved in uranium.
6. Oil companies or railroads holding extensive uranium properties.
7. Fertilizer or chemical companies processing radioactive phosphates and recovering uranium as a by-product.

Companies in categories 1 to 3, inclusive, are not likely to be paying dividends at this time. Those that are not operating have no earnings yet. The others are still likely to be using current income for further development work.

The companies in category 3 are likely to require considerable senior financing before they come into operation, probably in the form of debentures with warrants.

Companies in category 4 are not likely to be paying generous dividends if their uranium holdings are a large part of their total assets. In the American mining companies in this group, uranium investments are not heavy in relation to other properties, and the dividend yield is good.

In category 5, the yield may tend to be high for long-established South African gold companies and for the Australian zinc company. Uranium operations are not contributing heavily to earnings in category 6 and are a minor but growing factory in category 7.

For the investor who requires immediate, stable, assured income, the debentures of companies in categories 1 and 2 offer a great deal of attraction. While they are not seasoned in any conventional manner, the debentures of Gunnar or Pronto, for example, are very well protected by assets and projected earnings, have a short term to mature, and even at present advanced prices offer a good yield plus the opportunity to participate in the common through warrants. Doubtless other senior issues will be offered as the companies in category 3 progress toward production. The alert investor will give such issues his constructive consideration.

For investors who desire to forego immediate income for the opportunity of a fairly certain high return from uranium operations later, common shares of companies in categories 1 through 4 are logical candidates for consideration. In each case, the prevailing security regulations interpose a barrier between the investor and the company. Accurate figures on reserves, shipments, and prices are not made public. On the other hand, it is not impossible to work out rough estimates from the statements that are issued.

Concerning price volatility, it may be observed that, for shares of an operating company that has already established what appears to be its main ore reserves, market prices tend to be extremely stable. Very sizable fluctuations are bound to occur from time to time among the companies that are still in the process of proving up initial ore reserves. For the other categories, the volatility of market prices is not exceptional.

THOSE INTERESTING CANADIANS

The ability to recoup capital outlays before 1962 is all but guaranteed for Canadian companies that have contracts for delivery of ores to the Government-owned Eldorado company.

Other factors are also favorable for the leading Canadian uranium issues. They have the advantage of large orebodies, apparently upward of 14 million tons for Algon, possibly upward of 5 million tons each for Pronto and Gunnar (which has higher-grade ore). Even the relatively small Rix Athabasca is believed to have upward of a half-million tons of ore reserves, which would be very big in the United States. Another advantage is that of low costs of operation made possible by the shallow deposit depth and good grade or by the consistency of deposits.

Still another advantage is the possibility of further growth. The leading Canadian companies are managed by only a few groups, each with a record of outstanding success. With so much of their current holdings still unexplored and with so much of Canada still virgin and promising territory, there is every likelihood of considerable additions to present reserves. Finally, more current information is available about uranium activities in Canada than in our own country or elsewhere.

THE ARITHMETIC OF URANIUM PROFITS

The major variants to consider in estimating profit are the size and grade of the ore deposit, its accessibility for extraction, the capacity of the mill or the availability of custom milling facilities, interest, and overhead costs. The ore deposit is of principal importance, and, where that is large and of good grade, operations can be quite profitable.

As an example, Gunnar is expected to have its entire $19.5 million of sinking-fund debentures retired during the first five years of operation and to have a minimum of $6.5 million of residual earnings before taxes but after preoperation write-offs, depletion, interest, and so on. Allowing for exercise of warrants, some 4 million shares of Gunnar would be outstanding in the fall of 1960, at the end of five years of operation. This would mean that average annual net earnings during the five-year period would run at about $1.30 a share before taxes. Canadian taxes begin after three years of operation.

There is considerable possibility of much higher earnings than the foregoing minimum estimate would indicate. It now seems likely that Gunnar will have high-grade ore recoverable by strip mining for a number of years to come. Also operations now seem likely to start at 1,250 tons daily instead of 1,000.

The ultimate production rate will probably be 2,000 tons daily. This could result in a multiplication of the minimum profit estimate by a factor of 3 or 4.

Potentially the world's largest uranium producer, Algom is now reported to be negotiating some $40 million or more of new financing for the construction of two mills with an aggregate capacity of at least 4,000 tons per day and for the development of at least two mines. The uncertainty over the terms of financing and the rapidly expanding ore picture of this company's vast properties require earnings projections to be subject to considerable latitude. A reasonable expectation after operations are fully underway would be for share net earnings to run to more than $2.50 before taxes.

THE QUESTION OF OPTIONS

Gunnar and Pronto have warrants outstanding as a result of issuing debentures with warrants attached. Perhaps Algom will do the same. In other instances, Canadian uranium stocks have options outstanding in favor of the promoters and underwriters.

There has been a tendency to tar-brush all Canadian issues that have warrants and options outstanding or that have given considerable stock to the promoters for assignment of mining claims. It is suggested that, where possible dilution is moderate, a more realistic view is desirable than one that leads to indiscriminate avoidance of these issues.

The discovery and successful exploitation of a good mining location is no easy matter. It is usually preceded by a tedious program of combing vast expanses of wilderness and experiencing an extraordinarily high ratio of false starts. It takes the incentive of unusual reward to survive the inevitable disappointments.

In many cases, the capitalization is hopelessly rigged against the public. Although regulatory agencies may find it expedient to look askance at every security that has not met all formal tests, surely the security analyst can arrive at a more discriminating judgment. He is less interested in what the promoters are getting than in the vital question of whether the shareholder is getting good value for his money.

READINESS FOR OPERATION AN IMPORTANT FACTOR

Although there is little doubt about the future of atomic energy, there is a big question mark about the future of uranium. With the scheduled expiration of Government sponsorship and guarantees in 1962, will combined military and civilian demand support the market sufficiently to take up the increasing output of uranium at present prices? Will uranium be partly replaced by beneficiated thorium? Will other basic materials be found for nuclear reactors?

MAY LAST 20 OR 30 YEARS

According to Jesse C. Johnson, chief of the raw materials section of the Atomic Energy Commission, the uranium mining boom may last twenty or thirty years. He has expressed concern over the depletion of known uranium deposits in a relatively few years and has declared that "a high rate of discovery will be required to maintain scheduled production levels."

With this in mind, the AEC official stressed the need of considering a long-range Government buying policy beyond 1962, to cover the period between the present defense market and the development of a commercial market of reasonable size.

It seems reasonable to conclude:

1. With almost every large company in the United States and in other countries working to apply and to expand the uses of uranium, that metal is bound to have increasing commercial use over the years.

2. Military requirements are unpredictable and undependable.

3. The need for long-range planning is already receiving important recognition. It is unlikely that uranium companies will be kept under restrictions on the sale of their ores on a free market, without some continuing compensation in the form of stockpiling contracts or the like. Keeping mines in good condition and avoiding the waste of uranium resources may be lending a public utility character to this activity.

4. In connection with thorium or other possible partial substitutes for uranium, the fact is that uranium is still the only material that is produced under Government guarantees.

5. Estimates of future use of uranium which are based solely on the use of uranium for atomic electric power for distribution through existing channels seem overly pessimistic. The fact is that atomic energy is looked on by the experts as a new major fuel not only for the electric distribution system as we know it but also for the operation of portable power plants, ships' engines, aircraft engines, and so on. Atomic energy is expected to create new markets for power which are not comprehended in narrow estimates of power for electric utility outlets.

6. In any event, the cautious investor may wish to confine his attention to the companies that will recoup their capital outlays before 1962.

* * *

Filling in Lake "Kolck" north of City Hall Park was begun about 1800.

First Public Library established in 1729 with 1,600 volumes in City Hall on Wall Street. It was known as the Corporation Library. In 1754, it merged with the New York Society Library.

In 1835 . . . Fire forced operations on the old Board to suspend.

Act of 1838 . . . New York Free Banking Act.

Enoch Morgan's Sons established to manufacture soap in 1809.

Caswell Massey & Company, chemists and perfumers, founded in 1780.

Beneficial
Reports for 1954

Beneficial Loan SYSTEM

- **more families served than ever before**
- **further expansion of world's largest system of loan offices**
- **10th straight year of increased earnings**

Beneficial loans in 1954 continued to provide many families with the extra assistance they needed to overcome temporary financial difficulties, and by so doing helped them maintain their standard of living. These loans, to a large degree, are used to pay bills already incurred, thus aiding the economy at the local level.

The continued expansion of the Beneficial Loan System in 1955 will afford an opportunity for Beneficial loans to help more families in more communities than ever before.

. . . a Beneficial loan is
for a beneficial purpose.

HIGHLIGHTS

	1954	*1953*
Net Income	$ 15,197,593	$ 14,116,311
Net Income per Common Share*	$1.55	$1.45
Cash Dividends paid per Common Share*	$0.96	$0.96
Amount of Loans Made	$560,524,214	$536,616,263
Number of Loans Made	1,729,161	1,666,695
Instalment Notes Receivable	$345,331,314	$323,798,894
Number of Offices	863	809

* Adjusted for the recent two and one-half for one stock split.

The information contained herein should be read in conjunction with the financial statements and notes appearing in the 1954 Annual Report to Stockholders. A COPY OF THE REPORT WILL BE FURNISHED UPON REQUEST.

Beneficial Loan Corporation

BENEFICIAL BUILDING, WILMINGTON, DELAWARE

Subsidiary Loan Companies: BENEFICIAL FINANCE CO. . . . PERSONAL FINANCE COMPANY
COMMONWEALTH LOAN COMPANY . . . WORKINGMEN'S LOAN ASSOCIATION, INC.

Book Reviews

In this department are summarized books, articles, and documents of outstanding economic or financial interest.

Helen Slade is the author of the book reviews. She will cooperate with members of the Society desiring source material for JOURNAL *articles and for research projects and studies.*

ATOMIC ENERGY IN INDUSTRY

Proceedings, Third Annual Conference National Industrial Conference Board, 412 pp

In these proceedings of the Atomic Energy Conferences are papers furthering the knowledge of the uses of atomic energy for peaceful purposes. Reading the monographs will prepare analysts for a wider understanding of what degree of expansion may be expected from corporations engaged in this new industry, as well as of its impact on companies in allied fields. The reports, given by scholars for the benefit of persons interested in research and progress, reflect a precision of thinking and are likely to have momentous consequences.

Among the contributors was the eminent Dutch scentist, Niels Bohr. He paid special tribute to and explained the work of Rutherford, Moseley, and Geiger, who built a strong foundation for present efforts and achievements. Other speakers told of accomplishments in their countries' research laboratories. Francis Perrin of France lamented the shortage of coal in his land, although he did not undervalue the tremendous worth of French research in perfecting the French cyclotron, the Van de Graff electrostatic accelerator, and the Saclay reactor. Henry Brynielsson of Sweden mentioned uranium of low content in their shale deposits, and thought their basic need lay in obtaining a supply of raw materials. The "tools for experimental nuclear physics" most important to Swedish experiments are their several particle accelerators. The Italian CISE (Centro Informazioni Studi Esperienze) was thought by Georgio Valerio to have extended Italian power. Several foreign countries were said to lack basic materials, which on the other hand are plentiful in Canada, where R. J. Henry thinks they have enough uranium for "many years to come."

Raw material developments in the United States have grown in a spectacular manner. Much of this is the result of private investments. The desire for public participation has built several uranium mining ventures. An uncertainty of the extent of the raw-material supply coupled with high capital and production costs create difficulties which are not insurmountable.

American business seemingly has interest in investments in atom projects. Encouragement has been given by President Eisenhower, who appreciates the scope of "Atoms for Peace" work. The number of representatives of corporations within the United States giving papers of research projects, past, present, and future, indicates the significance of these ventures. Several of these private-enterprise spokesmen mentioned the expense probabilities, as well as the certain increase in the number of nuclear plants. Different approaches are appraised and characterized. Directors of Government projects gave details concerning these undertakings.

Doubtless we are entering the "Atomic Age." New problems will continue to confront us. Pierre Ryckmans of Belgium said: "We are trying to learn." This is true; from now on it has become necessary to measure the impact of new possibilities on our established industries. From those inexperienced in this kind of scientific thinking who now have the opportunity of finding means to measure progress as well as the students in this field, there will be gratitude to the Conference Board.

ECONOMICS OF PUBLIC FINANCE

O. H. Brownlee and Edward D. Allen
Prentice-Hall, 410 pp

In this revised edition, attempts are made to carry on the objectives of the original presentation. Because of the heightened importance of economic analysis and the spendings of Governments, recognition has been given to new patterns of production and distribution. Moreover, more employees find their wages coming directly from the U. S. Government. This kind of Government spending brings far-reaching results. In fact, our tax structure has been influenced; the amount collected has increased. At present, the main source of Federal tax revenues arises in collections of the income, personal, and corporate taxes. Some recent benefits in collections come from augmented personal income taxes, larger business taxation, new special benefit taxes, gift and death collections, and general property-tax revenues. The emergence and development of such taxes is excellently described.

Increasing public debt paradoxically has been utilized to fight both depression and inflation and has been rather unsuccessful in accomplishing either task." Of business taxes in our system, the corporation net income taxes appear to the authors to be least harmful, and here, too, errors are shown. Disadvantages of the personal income tax are enumerated, coupled with its heightened importance in certain areas. All kinds of taxes are critically examined. The discussion of methods of distribution altered by taxation is unusually well done.

Some taxes are thought to have greater flexibility than others; some discourage economic activities and cramp the full use of resources. Each and all, including the agricultural levies, are analyzed. So is the effect of "public activity upon private activity." Just how great the tax burden can be on both corporations and individuals becomes depressingly clear.

BANKING SYSTEMS

Edited by Benjamin Haggett Beckhart
Columbia University Press,
935 pp, $13.50

Mr. Beckhart, being a careful person and great scholar, has chosen only top authorities for his symposium on

Banking Systems. Each an expert in his field, they have evaluated the credit institutions and general banking systems of sixteen countries. Their manner of functioning and spheres of influence are explained. Legislation covering the financial structure, as well as the role now played by governmental supervision, is fully depicted, as is the impact of today's banking in different places. The methods by which Nations finance their economy and the manner in which they are alike or divergent explain the root of some possible variances in inferences.

Several of the present questions concerning today's banking problems in the United States are answered by J. Brooke Willis. Their distinctive features are presented. The wide range of services of these institutions has brought them the appellation of "department store banking."

Growth of our branch banking since the enactment of the state-wide branch banking law of California in 1909 is presented. In thirty years, branch banking has taken hold of the American imagination, culminating in the friendly feeling of recent supervisory agencies. Mr. Willis also indicates that "American banking has not experienced the consolidation or amalgamation movement that has taken place in England." Investment assets in the U. S. banks take "more than 40 per cent of the total assets of the commercial banks." Statutory provisions for this type of ownership are recorded. This article should be studied by all dealing in securities or engaged in American business.

Types of multiple banking offices as well as changes in practices in foreign countries, may best be explored by comparing tables. The tables in this important volume are of finest quality and easily followed. Problems of inflation are treated with diverse methods in almost every country. Russian measures are also presented.

Contributors to this symposium include J. E. Wadsworth, Margaret Myers, Henry Germain-Martin, and Donald B. Marsh.

IDEAS OF THE GREAT ECONOMISTS

George Soule
Viking Press, 218 pp, $3.50

That economic theories are the cornerstone for intelligent financial thinking is a recognized fact. In this concise survey of past doctrines may be found a complete coverage of the development of ideas, some of which had and still have extensive influence on financial and political principles. The book is comprehensive, lucid, and easy to read.

From Ricardo's thinking in terms of marginal worth has evolved a sense of corporate values and investment returns. His theories of rent, wages, and a "natural price" caused a move toward international free trade. John Stuart Mill decided wealth and its formation by man made laws a "human institution," changing from time to time. Human biases with their concomitant laws and customs determine opinions and thinking. He put raw materials in secondary position, saying "men had acquired command over natural forces." This was merely an enlargement of the ideas of Adam Smith, which gave credit to the skills of a Nation's labor force. He found the only source of national wealth a direct contribution of its labor force, which took issue with the Mercantilist doctrine of all wealth being derived from an excess of exports. Just as physiocrats saw prosperity arise from land. And Utilitarianism found national well being in "the greatest number," this a tenet of Jeremy Benthams. Benthams' influence has been wide. It may be of small moment to some analysts to label ideas; yet for them to fully comprehend these roots and see their results will undoubtedly make their labor easier. Just as people who read of the books of Frederick Hayek and those of John Maynard Keynes were less surprised at the turn of events than had they been ignorant of such beliefs.

Alfred Marshall sought a standard of comfort and the avoidance of "conspicuous consumption." His theories brought forth the "precept of the value" of a "national dividend." Though he saw the evils of poverty, he was likewise aware of the "benefits of private wealth."

Finding merit in the use of exact data for the furtherance of economic research and changes in prices and stability came from American economists. First among them was Wesley Clair Mitchell. He founded the school of thought that rests on measurements and scientific thinking. It was Mitchell's Business Cycle theory upon which a large portion of the growth of business economics and financial appraisals has taken root. It gave an impetus to the financial analytical thinking.

Most of the great economists are mentioned in this book. Pondering over the unfolding of ideas, how they took shape and where they lead, should be helpful to all readers.

APPROACHES TO ECONOMIC DEVELOPMENT

Norman S. Buchanan and
Howard S. Ellis
Twentieth Century Fund, 494 pp, $5

Forty-three tables and most intelligently arranged text raise many questions and bring problems to the fore for serious contemplation. There are definitions and histories of Government and private loans to both underdeveloped countries and sections of industrially advanced Nations, which should be examined and considered. Underdeveloped countries have a persistent poverty from which it is likely to be difficult to rise. There are four principal attributes of developed countries. These are "entrepreneurship, innovations and technical change, capital accumulation, and increasing specialization and exchange between persons and regions." An important barrier to economic growth lies in a cultural environment unfriendly to change. This, say the authors, may be altered by increasing commerce and introducing new wants and values.

Capital, which plays a great part in encouraging production, must come from either Governments or private supplies. It links the economic life of Nations and becomes highly reciprocal. By the wise uses of capital, progress as well as good feeling will be formed in backward areas. To encourage this is felt to be toward the best interests of the United States.

Careful guards against inflation may be better handled by the use of private capital with well-set-up barriers. Thus will the economic interests as well as the political be served. Raw materials may be imported, and friendly feelings encouraged. Another point of interest lies in the thought that, while most of the underdeveloped countries lack capital markets, their developing economy will find an organized securities exchange necessary. This is likely to be the means of allocating capital among competing users. These unusual questions are exceedingly important, and should not be overlooked.

"You bet I'm interested in this Report"

ANNUAL REPORT 1954
THE BROOKLYN UNION GAS COMPANY
ANNUAL REPORT 1954
THE BROOKLYN UNION GAS COMPANY

"I'm a Brooklyn Union customer and–also–my husband and I are Brooklyn Union stockholders. So naturally we like to know that our company is growing and keeping step with the steady development of Brooklyn and Queens."

In 1954, Brooklyn Union had its best year in two decades—

GAS SALES BROKE ALL RECORDS. Last year, gas sales were 30% above those in 1953. Arrangements were made for substantial new supplies of natural gas to prepare for this ever increasing demand.

THOUSANDS MORE INSTALLED GAS HEAT. The big swing to this clean, carefree fuel continued during 1954. About 50,000 Brooklyn Union customers have installed gas heating units.

PEOPLE ALSO PREFERRED MATCHLESS GAS COOKING. The majority of gas ranges we sold in the retail field during 1954 featured completely automatic oven, broiler, and top burner lighting.

ABOUT 100,000 MODERN GAS APPLIANCES WERE SOLD by Brooklyn Union and dealers in the area we serve. These appliances supplied major household services—home heating, cooking, refrigeration, water heating and clothes drying.

NEW MARKETS WERE DEVELOPED. The heavy sales of gas for heating during the winter months were almost balanced by the sale of interruptible gas to large industrial customers, chiefly during the warmer months. This helped to keep the cost of gas at a minimum.

Yes, we in Brooklyn Union had a good year and we look to the future with confidence in the growth and progress of our community and our company. Our "family" of over 3400 men and women will continue their efforts, through sound management and careful expansion, through reliable and efficient service, to bring better living to millions of people in Brooklyn and Queens.

• •

STATEMENT OF GROWTH

	1954	1953
Net income	$4,649,677	$3,738,288
Earnings per common share based on 1,863,410 shares now outstanding	2.50	2.01
Dividends paid per share	1.60	1.50

You may obtain Brooklyn Union's annual report by stopping in at our Main Office or by writing the Secretary of the Company.

THE BROOKLYN UNION GAS COMPANY

176 Remsen Street, Brooklyn 1, N. Y. TRiangle 5-7500

Luncheon Forum Talks

NEW YORK SOCIETY OF SECURITY ANALYSTS

FEBRUARY 1, 1955–MARCH 31, 1955

Date	*Speaker*	*Topic*
Feb 1	W. H. Harrison President of corporation	International Telephone & Telegraph Corp.
Feb 2	Eldred Scott Controller, Detroit Edison Co.	Utility Financing and Atomic Power
Feb 3	Clark R. Gamble President of company	Brown Shoe Co.
Feb 4	B. C. Graves Chairman of board	Union Tank Car Co.
Feb 7	R. E. Davis Manager of sales research	Goodyear Tire & Rubber Co.
Feb 8	Lloyd E. Kennedy Vice-president & treasurer	Deere & Co.
Feb 9	Fischer Black Editor of magazine	*Electrical World*
Feb 10	Clyde Foster President of company Alfred E. Wolf Vice-president of company	Standard Oil Co. of Ohio
Feb 11	E. Spencer Miller President of railroad	Maine Central R.R. Co.
Feb 15	Joel S. Mitchell President of company	Standard Brands, Inc.
Feb 16	D. S. Kennedy Chairman of company	Oklahoma Gas & Electric Co.
Feb 17	P. C. Rowe Executive vice-president	Flintkote Co.
Feb 18	John E. Tilford President of railroad	Louisville & Nashville R.R.
Feb 21	D. L. Luke Jr. President of company	West Virginia Pulp & Paper Co.
Feb 23	Murray F. Gill Chairman of company	Kansas Gas & Electric Co.
Feb 24	Charles G. Mortimer President of corporation	General Foods Corp.
Feb 25	Champion McDowell Davis President of railroad	Atlantic Coast Line R.R.
Feb 28	A. L. Freedlander President of company	Dayton Rubber Co.
Mar 1	G. J. Coffey President of company	Chicago Pneumatic Tool Co.
Mar 2	Ralph M. Besse Executive vice-president	Cleveland Electric Illuminating Co.
Mar 3	R. G. Lucks President of corporation	California Packing Corp.
Mar 7	William C. Stolk President of company	American Can Co.
Mar 8	Herbert Abraham Chairman of company	Ruberoid Co.
Mar 9	Bayard L. England President of company	Atlantic City Electric Co.
Mar 10	F. W. Magin President of company	Square D Co.
Mar 11	Fred B. Whitman President of railroad	Western Pacific R.R. Co.
Mar 14	Grover M. Hermann Chairman of board Robert E. Pflaumer President of corporation	American Marietta Corp.
Mar 15	K. E. Black President of company	Home Insurance Co.

Date	*Speaker*	*Topic*
Mar 16	Edgar Dixon President of company	Middle South Utilities Co.
Mar 21	R. G. Follis Chairman of board Elmer R. Peterson Vice-president of company	Standard Oil Co. of California
Mar 25	O. L. Doud Vice-president, finance Roadway Express, Inc.	Outlook for the Trucking Industry
Mar 28	Harold Boeschenstein President of corporation	Owens-Corning Fiberglas Corp.
Mar 29	L. A. Peterson President of company	Otis Elevator Co.
Mar 30	John H. Warden President of company	Upper Peninsula Power Co.
Mar 31	Joel Hunter President of company	Crucible Steel Co. of America

D A C Luncheons

Feb 14	Justin W. Dart President of company	Rexall Drug, Inc.
Mar 17	Roy Fruehauf President of company	Fruehauf Trailer Co.
Mar 24	George W. Troost Vice-president, finance	Chrysler Corp.

Special Meetings

Mar 4	Willard F. Stanley President, Corporate Services, Inc.	Rapid Tax Depreciation—Effect on U. S. Industry
Mar 18	Charles F. Roos President, Econometric Institute	Business Outlook & Security Prices
Mar 24	Louis E. Wolfson	Montgomery Ward & Other Interests

WARD BAKING COMPANY

The Board of Directors has declared the following dividends:

PREFERRED DIVIDEND—
The quarterly dividend of $1.37½ a share on the Preferred Stock payable April 1, 1955, to holders of record March 18, 1955.

COMMON DIVIDEND—
A quarterly dividend of 25 cents a share on the Common Stock payable April. 1, 1955, to holders of record March 18, 1955.

WARDS TIP-TOP BREAD

L. T. Melly, Vice Chairman and Treasurer
475 Fifth Ave., New York City
March 8, 1955

WARDS TIP-TOP CAKES

RADIO CORPORATION OF AMERICA

RCA

Dividend Notice

The following dividends have been declared by the Board of Directors:

First Preferred Stock

87½ cents per share on the First Preferred Stock, for the period April 1, 1955 to June 30, 1955, payable July 1, 1955, to stockholders of record at the close of business June 13, 1955.

Common Stock

A quarterly dividend of 25 cents per share on the Common Stock, payable April 25, 1955, to stockholders of record at the close of business March 15, 1955.

ERNEST B. GORIN,
Vice President and Treasurer

New York, N. Y., March 4, 1955

1954 - A GOOD YEAR

1955 - A BETTER YEAR

Another year of profit and progress has just been scored by Chesapeake and Ohio. The highlights shown below from C&O's 1954 Annual Report give the details.

Optimism for C&O in 1955 is highlighted by recent events—

- January earnings of 46 cents a common share were up 50% over January, 1954.
- February earnings of 44 cents a common share were 76% better than in February, 1954.
- Coal traffic, particularly export, continues upward.
- Merchandise freight revenues are running higher than last year.
- Illustrative of C&O's optimism is the decision just announced to build a new bulk-materials handling pier at Newport News, Va. This investment of $8.3 million will bring additional freight revenues of $4.6 million annually.

C&O FOR PROGRESS

1954 HIGHLIGHTS

Earnings a share of common stock were $5.01, third highest in the last thirteen years. The regular $3 annual dividend on common stock and $3.50 on preferred were amply covered.

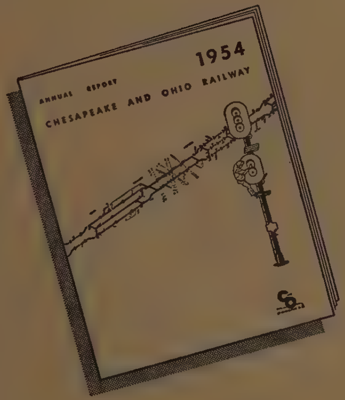
Merchandise traffic revenues of $143 million for the first time surpassed coal and coke revenues, contributing 51% of freight operating revenues. Coal and coke revenues of $138 million are expected to be increased by 10% in 1955.

Industrial development activities brought 110 new industries to C&O's line in the year. New revenues of $4 million annually are expected from these new businesses.

Capital improvements cost only $15 million, as against $50 million in 1953 and $85 million in 1952. The large post-war improvement program is behind us.

Debt was decreased by $24 million. No new debt was incurred.

Working capital increased. At the year-end, cash and government securities totaled $50 million. Current assets exceeded current liabilities by $40 million, the highest year-end balance save one in the company's history.



You may have a copy of the 1954 Annual Report. Just write Chesapeake and Ohio Railway, Terminal Tower, Cleveland 1, Ohio.

Chesapeake and Ohio acknowledges with sincere thanks the interest and help of all who contributed towards making 1954 the good year that it was.

Chesapeake and Ohio Railway

. . . mailed to

10,600

American-Marietta Shareowners

	1950	1951	1952	1953	1954
SALES	$44,100,903	$66,458,313	$76,714,724	$102,214,344	$120,724,965
NET INCOME	3,101,629	2,827,054	3,013,286	3,809,406	5,466,228
DIVIDENDS PAID	524,721	1,109,541	1,383,889	1,663,360	2,019,493

Operating Figures are Pro Forma

For Free Copy Write, Dept. 5

AMERICAN-MARIETTA COMPANY

General Offices: American-Marietta Building, 101 East Ontario Street, Chicago 11, Illinois

Plants Located Throughout the United States and Canada

PAINTS • CHEMICALS • ADHESIVES • RESINS

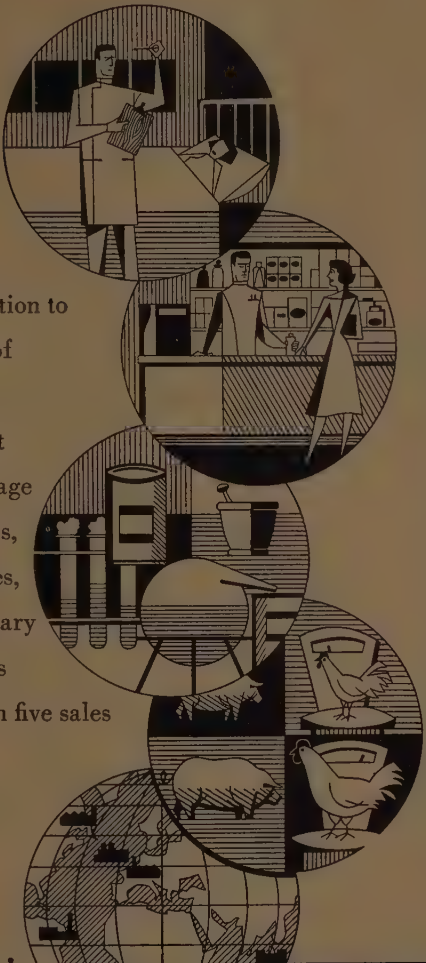
METAL POWDERS • BUILDING MATERIALS • HOUSEHOLD PRODUCTS

A-M

GROWTH THROUGH DIVERSIFICATION

Pfizer Sales Reach New High in 106th Year

Through a program of expansion and diversification, the 1954 sales of Chas. Pfizer & Co., Inc. reached an all-time high of $145,200,000. In addition to being the world's largest producer of antibiotics, the Company is now manufacturing an ever-widening list of products ranging from beverage ingredients to blueprint chemicals, from plasticizers to poultry remedies, from vitamin capsules to veterinary preparations. With a trained sales force of more than 1,250 men in five sales divisions, Pfizer is in an excellent position to market the varied new products emanating from its extensive research facilities.



Here, from the Annual Report, are some of the ways Pfizer expanded and diversified its activities in 1954:

Pfizer Laboratories Division introduced Tyzine*, a new drug for treating nasal congestion...increased the sale of Cortril® (hydrocortisone) and Bonamine*, a new drug for motion sickness ...expanded its line of veterinary products...continued its strong position in the field of broad-spectrum antibiotics with Tetracyn® (tetracycline) and Terramycin® (oxytetracycline), both Pfizer discoveries.

The J. B. Roerig & Company Division, specializing in human nutrition, expanded its line of vitamin and mineral preparations...launched Bonadoxin*, an important new preparation for nausea of pregnancy.

The Chemical Sales Division maintained its position as one of the nation's basic suppliers of bulk vitamins and antibiotics and developed new applications for its long-established line of fine chemicals.

The Agricultural Sales Division introduced Vigofac*, a powerful growth stimulant for hogs and poultry, and Agrimycin®, a Terramycin-streptomycin spray formulation, which controls a number of important bacterial plant diseases.

Pfizer International Subsidiaries completed fermentation plants in France and England. Now in operation are nine foreign subdividing, processing and packaging plants; five others are in the planning or construction stage.

*Trade Mark, Chas. Pfizer & Co., Inc.

FINANCIAL HIGHLIGHTS . . .

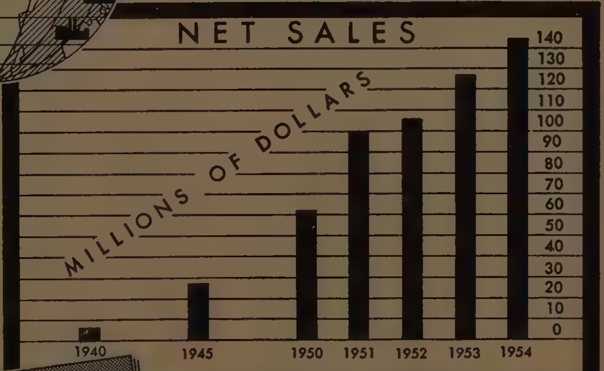
Total Sales—$145,200,000 . . . A record high, up 14% from 1953.

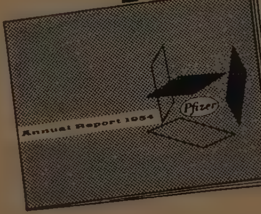
Net Earnings—$15,200,000 or $2.95 per common share . . . Also a record high, up 8% from 1953.

Dividends—$1.35 per share . . . Up 10¢ from 1953 (dividends paid continuously since incorporation in 1901).

Working capital—Up $5,000,000 to $55,000,000.

Research—More than $6,000,000 spent in 1954.

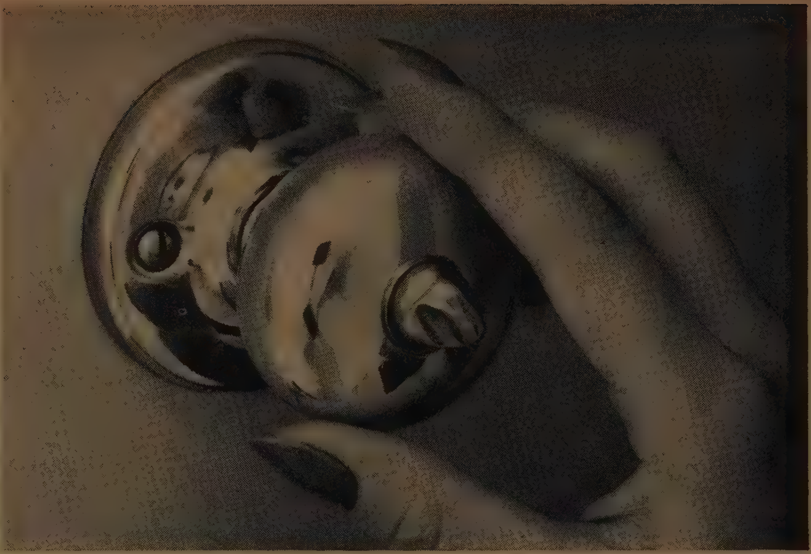




We will be very glad to send you a copy of the Pfizer Annual Report. Write Controller, Dept. 23 Chas. Pfizer & Co., Inc., 11 Bartlett St., Brooklyn 6, N.Y.

CHAS. PFIZER & CO., INC.
11 Bartlett Street, Brooklyn 6, New York
U. S. Plants and Laboratories:
Brooklyn, N. Y.; Groton, Conn.;
Terre Haute, Ind.; Maywood, N. J.

The annual meeting of stockholders will be held at the Company's Brooklyn headquarters, on Monday, April 18, 1955 at 11:00 A.M., Eastern Standard Time. All stockholders are cordially invited to attend.



Better Brass Products—
Brighter Brass Products—
Thanks to **FORMBRITE**

Manufacturer and consumer — everybody takes a "shine" to Formbrite,® the new drawing brass developed and sold by The American Brass Company, an Anaconda subsidiary.

To manufacturers, Formbrite means savings in production costs as it can be polished *in as little as half the time* it takes to polish ordinary drawing brass. In addition, Formbrite costs no more . . . yet is stronger, stiffer, "springier" — qualities which are important in stamped or drawn products.

To the consumer, Formbrite means more attractive and more lustrous brass products — products that are more scratch-resistant, too.

Formbrite is the result of special rolling and annealing processes which produce a superfine grain structure in the brass. It's another good example of the way Anaconda is working to serve American industry.

54293A

ANACONDA
COPPER MINING COMPANY

The American Brass Company
Anaconda Wire & Cable Company
Andes Copper Mining Company
Chile Copper Company
Greene Cananea Copper Company
Anaconda Aluminum Company
Anaconda Sales Company
International Smelting and Refining Company

If you are interested in learning more about Formbrite, write to The American Brass Company, General Offices, Waterbury 20, Connecticut.

This picture shows how RCA helps small manufacturers grow

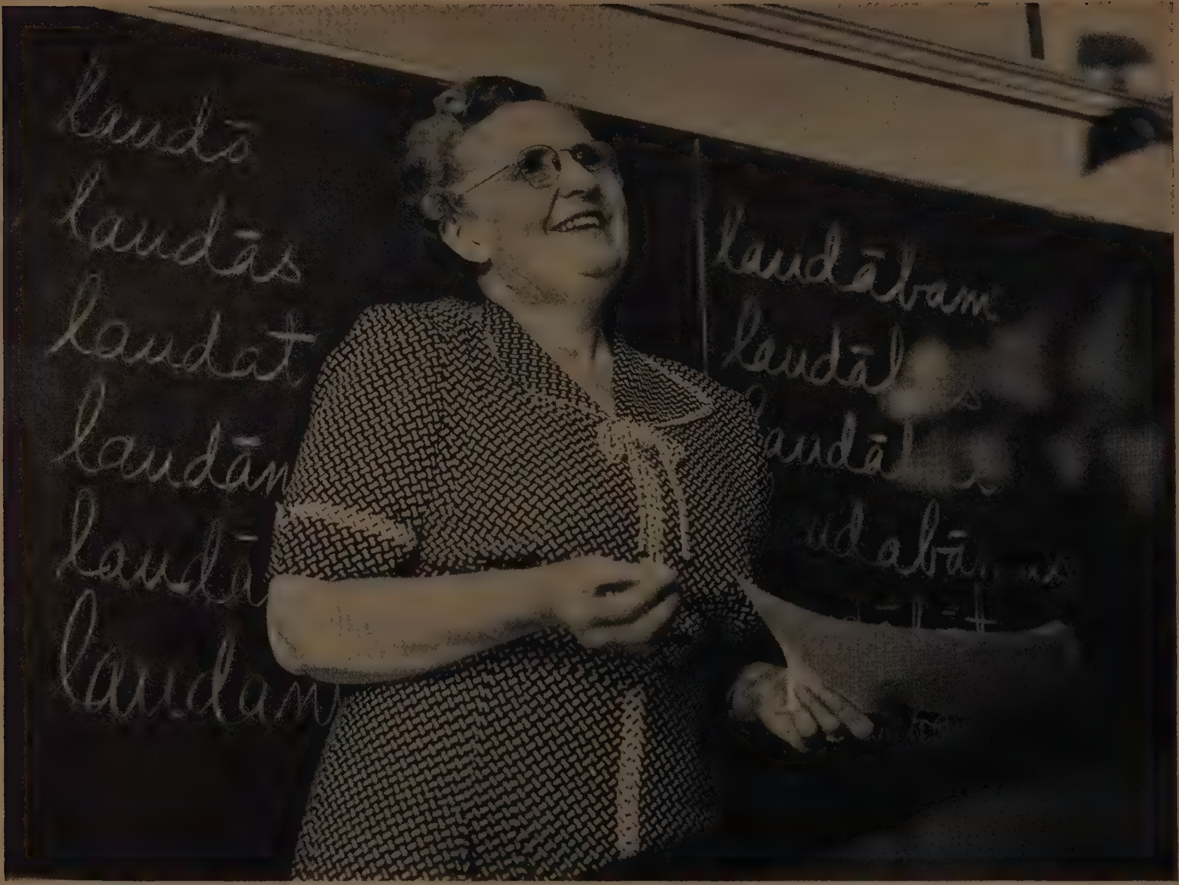
Today the inter-dependence between manufacturer and supplier is stronger than ever in the history of American business. For in the challenging new age of electronics, hundreds upon hundreds of component parts are needed in the manufacture of new products.

For example, the superb new RCA Victor 21-inch color TV set shown here contains 2,070 parts. These are made by 600 different suppliers, most of whom are small businesses.

Indeed, more than three-quarters of all RCA suppliers are small business firms that receive nearly one-half of RCA's purchasing dollars. They, in turn, have their suppliers of raw materials. Thus through a long line of co-operative effort, employment is provided for countless people in many fields—and an entire economy benefits.

RCA salutes its full roster of 7,500 suppliers, located in 43 states, for their inventiveness and resourcefulness that contribute so much to the quality and performance of its products. With these firms at our side, RCA continues to march forward, creating new and better "Electronics for Living"—electronics that make life easier, safer, happier.

RADIO CORPORATION OF AMERICA
ELECTRONICS FOR LIVING



Ruth Randall

The school teacher who owns an oil company

RUTH RANDALL teaches Latin at San Bernardino High School, San Bernardino, California.

In 1939 she invested part of her savings in 50 shares of Union Oil Stock. This makes her—along with some forty thousand other people—an owner of the 45th largest industrial company in the country.

And entitles her to examine the report card on our sixty-fifth year of business.

It was the largest in our history. Our customers paid us $351,731,678. We didn't keep all of this, of course.

16.8% we paid to our 8700 employees as wages and benefits.

4.8% went for taxes. (This does *not* include $60,000,000 additional in fuel taxes which we collected for the government.)

68.2%—by far the lion's share—we divided among more than fifteen thousand other companies and individuals with whom we do business.

This left us net earnings of 10.2%. From which we paid shareholders like Miss Randall 4.5% as dividends for the use of their money, and reinvested the remaining 5.7% in necessary expansion and modernization of facilities.

We hope Miss Randall is pleased with this report. We are certain she should be pleased with herself. For in wisely investing in American industry for her own security, she has helped to create a higher standard of living for everyone.

* * * *

YOUR COMMENTS ARE INVITED. *Write: The President, Union Oil Company of California, Union Oil Building, Los Angeles 17, California.*

Union Oil Company OF CALIFORNIA

MANUFACTURERS OF ROYAL TRITON, THE AMAZING PURPLE MOTOR OIL

finding a world of oil!..

25 YEARS of scientific petroleum prospecting

Wherever oil may hide, the Geophysicist applies scientific exploration techniques to help satisfy the world's increasing thirst for petroleum. The exploration subsidiary of Texas Instruments, *Geophysical Service Inc.*, started 25 years ago as the first reflection seismograph contractor. Continually expanding, GSI now operates throughout the free world . . . from Peru to the Arctic Circle; in Australia, Sumatra, India, Saudi Arabia, Europe, and Africa.

Today, Texas Instruments leads the industry in geophysical research, instrumentation and exploration. Through its petroleum instrumentation subsidiary, *Houston Technical Laboratories*, TI designs and builds for the Geophysicist such scientific tools as reflection and refraction seismic systems and the world's most used gravity meter.

In addition to its geophysical activities, Texas Instruments develops and manufactures electronic components and equipment for many commercial and military uses. TI is the leading producer of germanium transistors (tiny devices that take the place of vacuum tubes) and is the exclusive commercial producer of the high temperature *silicon* transistor.

TWENTY-FIFTH YEAR OF PLANNED GROWTH

keep an eye on T/I

TEXAS INSTRUMENTS
INCORPORATED
6000 LEMMON AVENUE DALLAS 9, TEXAS

THE SPERRY CORPORATION

REPORTS FOR 1954

FINANCIAL SUMMARY

	1954	1953
SHIPMENTS	$440,906,187	$464,071,442
NET INCOME	$ 28,454,002	$ 15,801,411
Per Share	$ 6.55	$ 3.79
% of shipments	6.5%	3.4%
NUMBER OF SHARES OUTSTANDING — Dec. 31st	4,343,590	4,173,390
DIVIDENDS	$ 7,475,495	$ 6,254,493
Per Share	$ 1.75	$ 1.50
NUMBER OF STOCKHOLDERS Dec. 31st	25,924	25,831
STOCKHOLDERS' EQUITY Dec. 31st	$104,609,525	$ 78,783,016
Per Share	$24.08	$18.88
NUMBER OF EMPLOYEES Dec. 31st	33,418	32,752
WORKING CAPITAL Dec. 31st	$ 85,491,108	$ 60,836,529
PLANT AND EQUIPMENT (NET) Dec. 31st	$ 37,143,830	$ 35,088,082
UNFILLED ORDERS Dec. 31st	$446,559,000	$539,520,000

NOTES:

(1) 1954 figures include those relating to our English subsidiary; in 1953 this subsidiary's operations were not included, except to the extent of dividends received from it by The Sperry Corporation.

(2) Per share figures are based on the number of shares outstanding at Dec. 31st of each year, except that the outstanding shares at the end of 1953 have been adjusted to give effect to the two-for-one stock split-up in 1954.

1954 HIGHLIGHTS

The rate of cash dividends paid in 1954 was increased for the second consecutive year. Cash and a stock dividend have been paid in the first quarter of 1955, the 22nd consecutive year of dividend payments.

Sperry continued to lead in the fields in which it operates, principally electronics, hydraulics, and grassland-farming equipment.

Guided missiles, automation devices, and atomic instrumentation received increased attention in Sperry laboratories and factories.

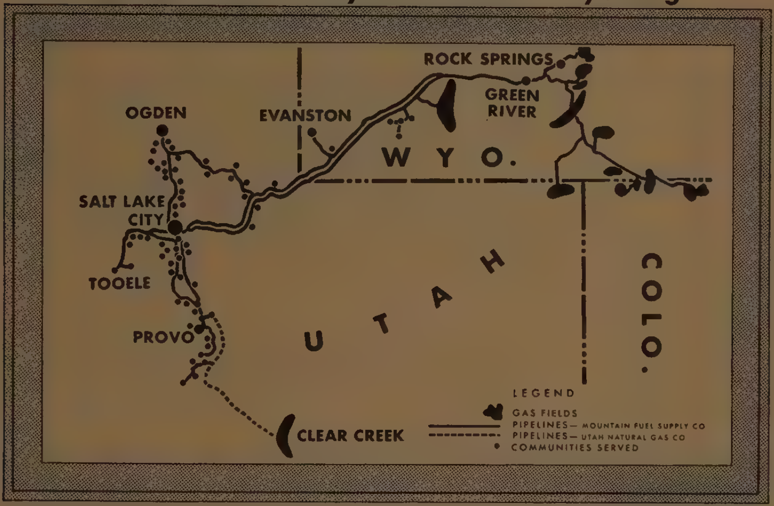
Sperry participated in ten guided missile projects, ranging from small air-to-air missiles to large intercontinental bombardment projectiles. The Sperry Sparrow I air-to-air missile is in production.

Sperry received a contract to design and build the reactor control drive mechanism for the second atomic submarine, and completed design for a complete nuclear power reactor for commercial purposes.

Sperry's New Holland Division had an excellent year in farm machinery, despite adverse factors in that industry.

Highlights of the 1954 Annual Report
MOUNTAIN FUEL SUPPLY COMPANY

Producing and serving Natural Gas to 68 communities in the Salt Lake Valley and Western Wyoming



Mountain Fuel Supply Company, now entering its 26th year of natural gas service to the Salt Lake City-Ogden-Provo area of Utah, and to southwestern Wyoming, continued its accelerated program in 1954.

Number of customers increased 10.9 per cent, from 103,934 to 115,303, breaking all previous records. Gas sales increased 19.9 per cent to 49,901,845 thousand cubic feet—having a value of $16,702,547.

Development of gas reserves has kept pace with the expansion of operations.

FINANCIAL RESULTS IN BRIEF	1954	1953
Total Assets (depreciated basis)	**$63,124,835**	**$57,084,555**
Total Operating Revenues	**17,523,593**	**14,165,003**
Net Income	**2,825,131**	**2,718,864**
Net Income per share	**1.42**	**1.37**
Dividends	**1.00**	**.90**
Number of Stockholders	**10,471**	**9,665**

The Company owns and operates 85 miles of gathering lines, 457 miles of transmission lines, 1,857 miles of distribution mains and 598 miles of service lines. Daily capacity is 235 million cubic feet, of which 177 million cubic feet are from its own system. Serves Salt Lake City, Ogden, Provo; 59 other communities in Utah; 6 communities in Wyoming and contiguous rural areas in both states.

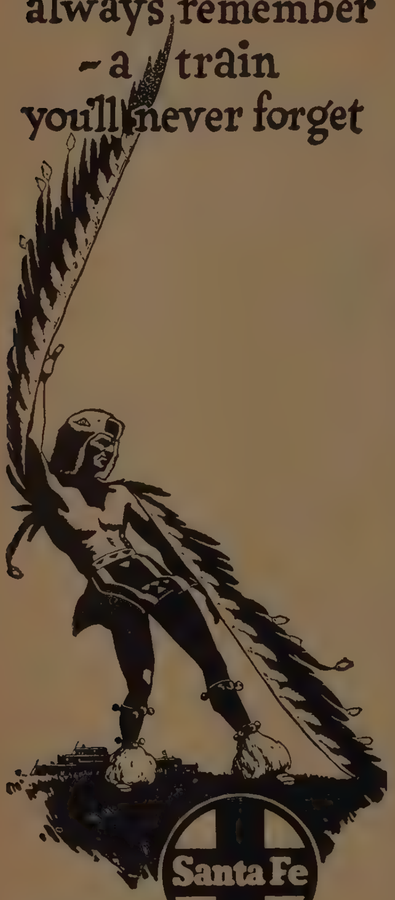
Dividends have been paid continuously by the Company since 1935. Present dividend rate is $1 a share per annum. *Listed on the Pittsburgh Stock Exchange.*

MOUNTAIN FUEL SUPPLY COMPANY

Growing with the Intermountain West

General Office—36 South State Street Salt Lake City 10, Utah

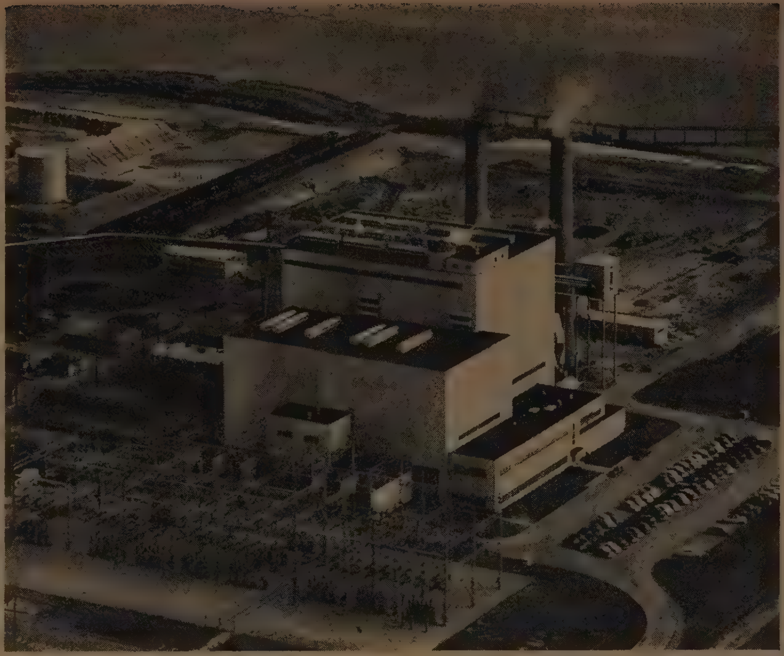
A trip you'll always remember – a train you'll never forget



Super Chief

...your carefree ride through the colorful Southwest Indian Country on the *Super Chief*... only train in the world with a private dining room... Daily departures from Chicago and Los Angeles.

R. T. Anderson, Gen'l Pass. Traffic Mgr.
Santa Fe System Lines, Chicago 4



PORTSMOUTH STATION
at Portsmouth, Virginia

more power
at the "Top of the South"

Another 100,000 kilowatts of electric power were added to the Vepco power system with the recent completion of the new addition to the PORTSMOUTH STATION at Portsmouth, Va.

Another 100,000 Kw. unit, now about completed, is being added to the POSSUM POINT STATION near Quantico, Va.

And a third project—the ROANOKE RIVER HYDRO DEVELOPMENT, near Roanoke Rapids, N. C., now under construction—is expected to add still another 100,000 Kw. to the system before the end of 1955.

POWERED FOR THE FUTURE, TOO! All this adds up to a plentiful supply of economical and dependable power for present and new industries in the Vepco service area at "THE TOP OF THE SOUTH" where the present-day capacity already is two and one-half times what it was only a few years ago.

Inquiries addressed to our Area Development Department for plant site and other information will have prompt attention and, of course, will be held in strictest confidence.

VIRGINIA ELECTRIC AND POWER COMPANY
Richmond 9, Virginia

Progress in research and development

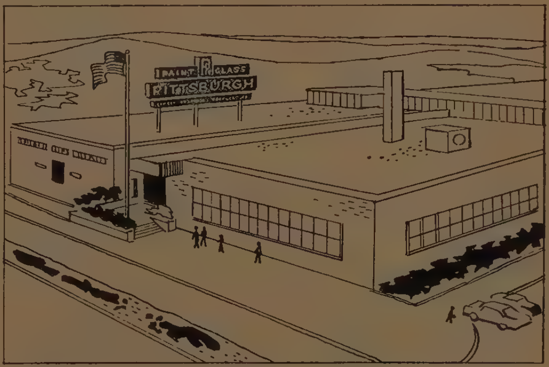
Pittsburgh Plate Glass Company continues to place emphasis on its programs of research and product development. Through these programs it is expanding the uses and applications of present products and developing new ones.

Here are four major divisions of Pittsburgh Plate Glass Company in which progress is being made to meet the challenge of better products through advanced research, better manufacturing methods, and more efficient merchandising. All these are vital to the continued growth of the Company.

In the Glass Division new manufacturing techniques are being developed for "wrap-around" windshields. New and different applications for Twindow® and TwindoWeld® double-glazed insulating units are being advanced to take advantage of the expanding markets for these products.

Focal point of the Paint and Brush Division's research program is this modern Research Center at Springdale, Pa. Facilities are devoted to creation and experimental production of new paints, resins, and plastics. Among recently introduced products are easily mixed, artistic Maestro Colors.

Diversification marks the research work of Columbia-Southern Chemical Corporation. One notable product further developed is Silene, a calcium silicate originally designed as a rubber reinforcing agent and now finding new markets in the paper industry.



Merchandising Division—Pittsburgh Plate Glass Company maintains maximum customer service in its 211 units of the Merchandising Division. In the past year, for example, this division added eight branches and remodeled others, including the Dallas, Texas, branch shown here.

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS · FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

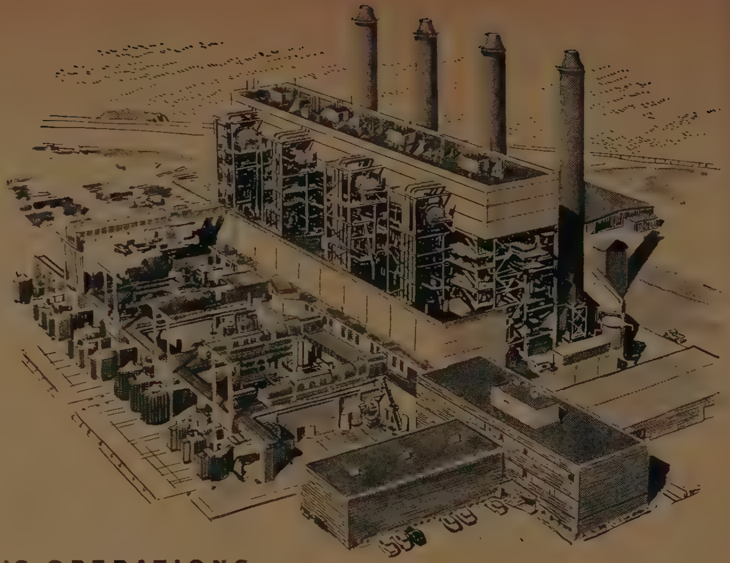
and its wholly-owned subsidiary COLUMBIA-SOUTHERN CHEMICAL CORPORATION

PG *and* E

FORTY-NINTH ANNUAL REPORT

1954

1954 surpassed all previous records in sales of gas and electricity, gross operating revenue and number of customers served.



Highlights OF THE YEAR'S OPERATIONS

Gross operating revenues from all sources reached a new peak of $386,244,000 and exceeded those of the previous year by $22,139,000, or 6.1%. In addition, miscellaneous income amounted to $1,035,000, consisting principally of dividends from subsidiary companies.

Sales of electricity to customers totaled 15,042,000,000 kilowatt-hours, or 1.8% over those of the previous year. In addition, we delivered for the account of others 943,000,000 kilowatt-hours. Combined sales to customers and deliveries for others exceeded those of 1953 by 5.0%.

Sales of gas to our customers totaled 243,508,000,000 cubic feet, an increase of 16,455,000,000 cubic feet, or 7.2%. In addition, 71,092,000,000 cubic feet of gas was transported for use in our steam-electric generating plants and for other Company uses.

At the year-end we were supplying service to 2,973,590 customers in all branches of our operations. The net gain for the year was 244,422, of which 139,642 were acquired on August 31, 1954, as a result of the merger of Coast Counties Gas and Electric Company.

We experienced a further gain in the number of stockholders participating in our ownership. At the year-end we had 217,336 stockholders of record, a gain of 10,253 for the year. Of the total, 88,259 were preferred stockholders and 129,077 common stockholders.

Control of Pacific Public Service Company was acquired in February 1954. The company and its principal subsidiary, Coast Counties Gas and Electric Company, were merged into this Company on July 30, 1954 and August 31, 1954, respectively.

Expenditures for expanding and enlarging our facilities totaled $170,933,000 for the year, or about $26,000,000 below the peak established in the previous year. A further reduction in these expenditures is anticipated in 1955.

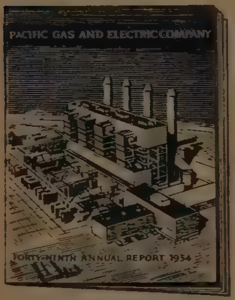
In order to offset the higher cost of out-of-state gas purchased by the Company, higher gas rates estimated to increase our gross revenues $7,073,000 annually were placed in effect on December 1, 1954. On a full year's basis, this increase will add about 20 cents a share to our earnings.

Bonds and preferred stock with an aggregate par value of $85,000,000 were sold to finance our continuing construction program. About 681,000 shares of common stock and 72,000 shares of preferred stock were issued in exchange for securities of acquired companies. A $65,000,000 bond issue was sold to refund our outstanding Series V bonds.

Net earnings for the common stock amounted to $2.89 a share compared with $3.12 in the previous year, both based on the average number of shares outstanding in the respective periods. Based on end-of-period shares outstanding, our earnings were $2.88 a share compared with $2.82 a share in the previous year.

J B Black

PRESIDENT



PACIFIC GAS AND ELECTRIC COMPANY

FORTY-NINTH ANNUAL REPORT 1954

If you'd like to know more about P. G. and E. write: K. C. Christensen, Treasurer, 245 Market St., San Francisco 6, California for a copy of our Annual Report.

Pacific Gas and Electric Company

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P. G. & E. Serves 46 of California's 58 Counties . . .

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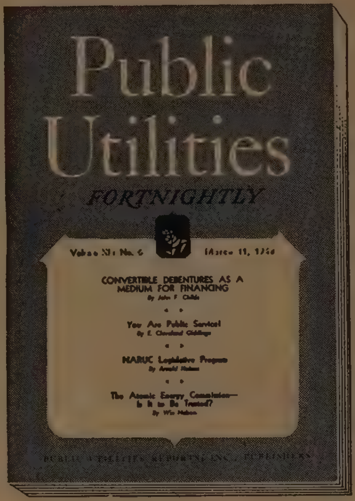
of important information

about the public utility industry



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FORTNIGHTLY

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The FORTNIGHTLY brings its readers a well-rounded report every two weeks of major happenings of interest and concern, relating to finance, management, operation and other matters coming within the scope of utility regulation and allied topics. Thus, the FORTNIGHTLY serves as an essential supplement to the customary statistical and other data which analysts normally gather regarding security issues of utility companies.

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Departmentalized for convenient reading are these special sections of the magazine which appear regularly: Washington and the Utilities, Exchange Calls and Gossip, **Financial News and Comment**, What Others Think, Progress of Regulation, The March of Events and Industrial Progress. This material has been found especially helpful to investment interests.

Financial News and Comment

Particular attention is given by the editorial staff to the financial activities of the utility industries. Among the many classifications of subjects covered are: Earnings data, new financing, refundings, forecasts, reorganizations, mergers, sales, regulations relating to financial operations, and statistical reviews, embracing original charts, graphs and special studies.

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Published by—

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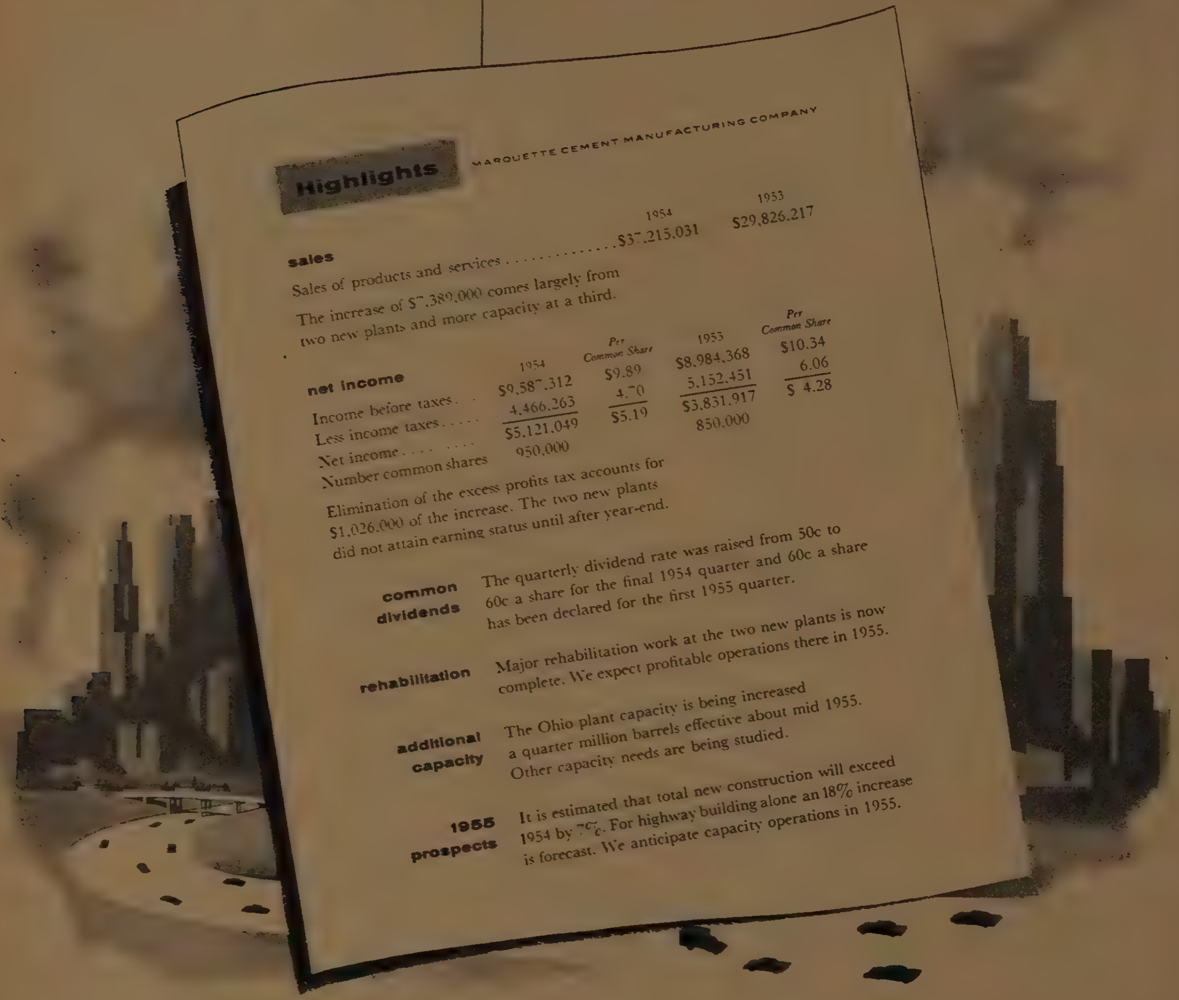
1954

a brief report on a successful year



Highlights MARQUETTE CEMENT MANUFACTURING COMPANY

sales

	1954	1953
Sales of products and services	$37,215,031	$29,826,217

The increase of $7,389,000 comes largely from two new plants and more capacity at a third.

net income

	1954	Per Common Share	1953	Per Common Share
Income before taxes. .	$9,587,312	$9.89	$8,984,368	$10.34
Less income taxes.	4,466,263	4.70	5,152,451	6.06
Net income	$5,121,049	$5.19	$3,831,917	$ 4.28
Number common shares	950,000		850,000	

Elimination of the excess profits tax accounts for $1,026,000 of the increase. The two new plants did not attain earning status until after year-end.

common dividends The quarterly dividend rate was raised from 50c to 60c a share for the final 1954 quarter and 60c a share has been declared for the first 1955 quarter.

rehabilitation Major rehabilitation work at the two new plants is now complete. We expect profitable operations there in 1955.

additional capacity The Ohio plant capacity is being increased a quarter million barrels effective about mid 1955. Other capacity needs are being studied.

1955 prospects It is estimated that total new construction will exceed 1954 by 7%. For highway building alone an 18% increase is forecast. We anticipate capacity operations in 1955.

BALANCE SHEET SUMMARY

	December 31 1954	December 31 1953
Assets		
Working capital	$ 7,275,470	$ 6,610,754
Investments in other companies . . .	50,000	50,000
Other assets	29,354	1,187,546
Properties, plants & equipment—net . . .	35,282,530	25,531,685
Deferred charges	1,020,623	898,754
	$43,657,977	$34,278,739
Liabilities and Shareowners' Investments		
Long term debt	$11,400,000	$ 8,500,000
Reserves	1,524,810	1,146,896
Preferred shares and premium	3,780,000	3,802,800
Common shares	9,500,000	8,500,000
Retained net income .	14,631,242	11,694,428
Additional paid in capital	2,821,925	634,615
	$43,657,977	$34,278,739

Broadened markets and sustained high production contributed substantially to Marquette's growth in sales, earnings and financial stability during 1954. The full story, including complete facts and statistics on the year's operations, is presented in our just-published annual report. We will be pleased to send you a copy on request.

MARQUETTE Cement
MANUFACTURING COMPANY

Operating eight cement producing plants in Illinois, Iowa, Ohio, Missouri, Tennessee, Mississippi and Georgia

ANNUAL CAPACITY 13,600,000 barrels

EXECUTIVE OFFICES • 20 N. WACKER DRIVE • CHICAGO 6, ILL.

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BRITISH COLUMBIA POWER CORPORATION, LIMITED

and its Sole Direct Subsidiary

BRITISH COLUMBIA ELECTRIC COMPANY LIMITED

and the Subsidiary Companies of the Latter

CONSOLIDATED STATEMENT OF INCOME

for the Year Ended 31 December 1954

(with corresponding figures for the year ended 31 December 1953)

	1954	1953
Gross revenue from operations	$59,243,593	$56,006,963
Deduct—		
Employment costs:		
Wages and salaries	$18,218,699	$17,558,356
Pension plans	2,012,848	1,916,000
Workmen's compensation and unemployment insurance	296,012	436,919
Other welfare and insurance plans	500,985	430,178
Directors' fees	27,185	23,580
Materials, outside services, etc.	8,335,774	8,442,480
Provision for depreciation	7,476,867	7,116,162
Required for Government:		
Provision for taxes on income	7,212,381	6,351,100
Property taxes	2,165,170	1,954,672
Transportation franchise expense	490,631	479,732
Water licence fees	327,882	286,070
Other charges	152,821	204,427
Total operating expenses	$47,217,255	$45,199,676
Operating income	$12,026,338	$10,807,287
Add—		
Non-operating income:		
Net return from temporary investments	690,349	460,886
Profit through redemption of bonds at less than principal amount	148,741	140,118
	$12,865,428	$11,408,291
Deduct—		
Interest on bond debt, less interest charged to construction $541,376 ($366,968 in 1953)	4,813,801	4,436,913
Amortization of bond refunding and issue expenses and discounts, applicable to:		
Refunded issues	80,208	80,208
Outstanding issues	259,792	241,768
Net income for the year	$ 7,711,627	$ 6,649,402
Deduct—		
Dividends on preferred shares and stock of subsidiaries owned by the public:		
British Columbia Electric Company Limited	2,534,637	2,003,837
British Columbia Electric Railway Company Limited	49,633	50,308
Earnings for the year on Common Shares of parent Company:		
Amount	$ 5,127,357	$ 4,595,257
Per share outstanding at the year-end	$1.62	$1.47

CONSOLIDATED STATEMENT OF EARNINGS EMPLOYED IN THE BUSINESS

for the Year Ended 31 December 1954

(with corresponding figures for the year ended 31 December 1953)

	1954	1953
As at the beginning of the year	$ 8,659,378	$ 6,791,458
Add—		
Earnings on Common Shares of parent company per Consolidated Statement of Income	5,127,357	4,595,257
Provisions for taxes on income of prior years, estimated to be in excess of requirements	—	300,000
	$13,786,735	$11,686,715
Deduct—		
Expenses relating to changes in 1953 in share capital of parent company:		
Conversion of Class "A" and Class "B" Shares into Common Shares	91,276	64,238
Fees to increase authorized share capital	31,500	25,500
Issue of additional Common Shares	—	27,354
Commission and expenses on issue of Cumulative Redeemable Preferred Shares of British Columbia Electric Company Limited	582,639	639,745
	$13,081,320	$10,929,878
Deduct—		
Dividends on Common Shares of parent company	3,154,776	2,270,500
As at the end of the year	$ 9,926,544	$ 8,659,378

Copies of the complete Annual Report may be obtained by writing British Columbia Power Corporation, Limited, 425 Carrall Street, Vancouver 4, B.C.

DOLLARS GROW BIG IN NEW ENGLAND

"Green Thumb" may not be a financial term, but nothing else adequately describes the vital surge in the economic strength of new New England. And it *is* a *new* New England!

Today's New England has aggressively acquired a new high in industrial diversification. Today's New England is readily being recognized not as "one of the" . . . but "THE" leader in the production of electronic equipment, machine tools, plastics and precision instruments. And these are progressive, high-wage industries generating steadily higher incomes for the region's growing population.

Striding ahead with the economic resurgence of the area is New England Electric System, the region's largest. During the last five years an average of over 13,000 new electric customers were connected annually to the System's lines, increasing the total to 730,663. In this total are included 2100 major industries which give the area a high degree of industrial diversification.

If you would like to know more about New England Electric System and the area it serves, please write to Box A, 441 Stuart Street, Boston, Mass.

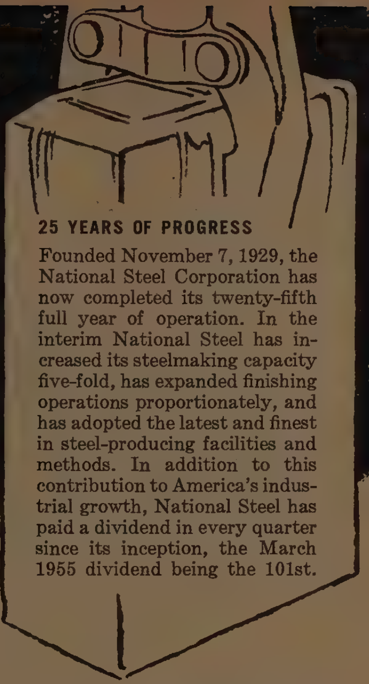
NEW ENGLAND ELECTRIC SYSTEM

NEW ENGLAND ELECTRIC SYSTEM

New Englands Largest

Reporting at the quarter-century mark...

National Steel for '54



25 YEARS OF PROGRESS

Founded November 7, 1929, the National Steel Corporation has now completed its twenty-fifth full year of operation. In the interim National Steel has increased its steelmaking capacity five-fold, has expanded finishing operations proportionately, and has adopted the latest and finest in steel-producing facilities and methods. In addition to this contribution to America's industrial growth, National Steel has paid a dividend in every quarter since its inception, the March 1955 dividend being the 101st.

ON SALES AND WAGES

Because of sharply reduced buying by steel consumers in the first three quarters of 1954, National Steel's total sales declined slightly below the half-billion dollar mark, compared with sales of more than six hundred million dollars in 1953, the highest mark in the history of the Company. National's operations were conducted at an average rate of 74 per cent of capacity during the year. Employees enjoyed an hourly rate increase, but total and average wages declined as a result of the reduction in industry volume. In addition to money wages, other substantial payments were made by the Company for such employee benefits as retirement annuities, group insurance, hospitalization and surgical care. An increase in steel prices only partially compensated for the increase in labor cost and related costs of goods and services.

ON INCOME AND TAXES

The change in net earnings for 1954 was primarily the result of the change in operations volume. Dividends were paid in the amount of $3.00 per share at the rate of 75 cents per quarter. The elimination of the Federal excess profits tax and lower earnings resulted in lower tax payments. Taxes continued to exceed earnings, however, amounting to $5.26 per share compared with earnings of $4.12. National Steel's contribution to Federal, State and Local Government tax income during 1954 amounted to more than 38 million dollars.

ON NOW AND THE FUTURE

Continuation of population growth and of the steady upward trend in per capita use of steel—in the United States and the world as a whole—plainly indicate the necessity of continuing expansion of steelmaking capacity in the future. National Steel's record of consistent growth is being maintained in both current activity and plans for the future. In 1954, provision for replacement of facilities was almost 38 million dollars, the peak amount in the history of the Company. Property additions amounted to approximately 60 million dollars, and expenditure of the same amount is anticipated in 1955.

Notable features of our program of improvement and expansion in 1954 included an increase of 50 per cent in the capacity of the No. 1 electrolytic line at Weirton, which produces our zinc-coated steel, Weirzin. A similar increase was made in the plating capacity of two tin plate lines, one of which is the largest in the steel industry. The ore carrier GEORGE M. HUMPHREY was added to our fleet, and set a new Great Lakes record by hauling 22,379 tons of iron ore in a single trip. With this new ship, and the ERNEST T. WEIR launched the year before, National operates two of the largest carriers on the lakes. The new Labrador-Quebec iron ore field, in which we have a substantial interest, began production on schedule and started the shipment of ore.

In 1955, a blast furnace, now being rebuilt and enlarged from a 20,000-ton to a 50,000-ton monthly capacity, will be placed in service at Great Lakes Steel and will contribute additional pig iron required to bring steel production to full capacity. Another program at this location will increase production of cold rolled sheets by a minimum of 50,000-tons per month, or 600,000 tons per year, by the end of 1955. At Weirton new facilities to begin operation include a completely rebuilt 54-inch continuous hot sheet mill, a five-stand cold mill, a continuous annealing line, and the No. 5 electrolytic line—each of which will be the fastest and highest capacity of its type.

These projects and others scheduled for completion in 1955 will contribute importantly to an increase in the production of finished products, reduction in costs, further improvement of quality, and, therefore, to an increase in the earning capacity of National Steel Corporation.

HIGHLIGHTS OF 1954

	1954	1953
Net Sales	$484,058,380	$634,178,060
Net Income	30,334,871	49,174,080
Net Income per share	4.12	6.68
Total Payrolls	137,294,064	159,822,220
Total Dividends Paid	22,009,698	23,862,229

A copy of our Annual Report for 1954 will be mailed upon request.

NATIONAL STEEL CORPORATION
Grant Building NATIONAL STEEL Pittsburgh, Pa.

Owning and Operating
Weirton Steel Company • The Hanna Furnace Corporation • Great Lakes Steel Corp.
National Steel Products Company • Hanna Iron Ore Company • National Mines Corp.

SERVING AMERICA BY SERVING AMERICAN INDUSTRY

FOUND...

how to make every roast perfect!

For Domestic Drama at its most dramatic few scenes can rival an important dinner party when the husband carves into a well-browned roast—and finds it practically raw.

It can happen in any household . . . or it could until January 10, 1955.

On that date Philco announced the Philco Electric *Roastmeter* Range—the first range in history that makes it possible for *any* woman to cook a perfect roast *every time!*

If you have only contemplated roast meat from the end of a fork, the extent of this miracle in the kitchen may not be at once apparent. You may not realize, for example, that even experienced cooks can never be *sure* with a roast.

There are too many variables—size of the roast, its shape, density, and bone or fat content, to name a few. No cook or cookbook can juggle all these factors.

Nor can you tell when the roast is done by looking at it, because meat cooks from the outside in. The only accurate index is its internal temperature.

A frustrating picture, even for Philco engineers who attacked the problem.

What they wanted was clear enough—*a system that would measure accurately the inside temperature of a roast and transmit the information up to a dial on the control panel where it could be seen without opening the oven door.*

It had to be electrical, yet safe for use with wet hands . . . the sensing device going into the roast could contain no mercury, yet must be accurate and consistent . . . and the needle on the dial had to register heat yet not to be moved by kitchen temperatures.

Thus was born the Philco Roastmeter Range, and a new era in cooking.

Now you see the roast cook *on the control panel.* It's never underdone when you want it Rare, or overdone when you want Medium. Every roast is perfect, every time.

In its fundamental contribution to an important business, this development typifies the integration of Research with Application that makes Philco a leader in so many industries—Television . . . Radio . . . Refrigeration . . . Freezers . . . Electric Ranges . . . and Air Conditioning.

And the end is not in sight!

ANOTHER FIRST FROM PHILCO RESEARCH

DIVERSIFICATION Benefits...

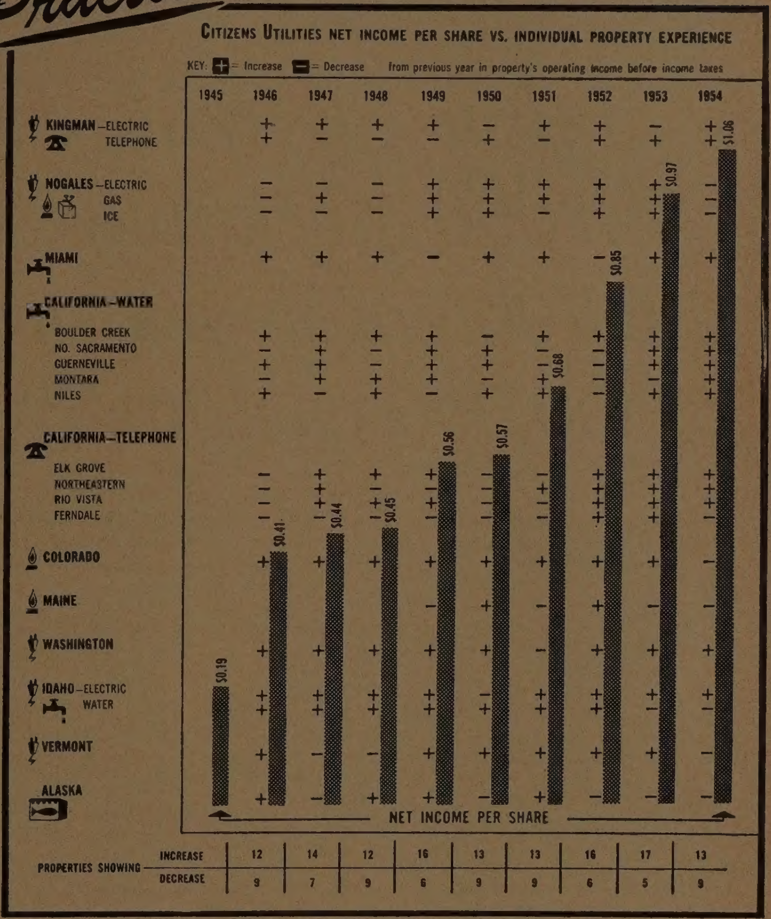
The Proof in Practice

From the 1954 Annual Report: "If the year 1954 may be characterized, it would be described as one of extremes for us: favorable developments beyond expectations at some properties; and adversities beyond reasonable contemplation at others. But the results of the past year once again show in the most concrete form the very real safeguards and growth benefits which our unique diversification affords . . ."

The chart contrasts earnings **per share** with the performance of each of Citizens' individual property activities on the basis of operating income before income taxes, year to year, evaluated in pluses and minuses. The results constitute "the proof of the pudding"! In no one year were all property performances on the plus side. But in **each** and **every** year—consistently—there has been an increase in **per share** earnings by reason of the benefits which Citizens' multiple diversification provides. It is to be noted in passing that Citizens' **per share** earnings in 1954 were 558% of those in 1945.

Citizens' extraordinary growth in **per share** earnings is the result of a unique application of the principle of diversification. Citizens is the **only** operating utility which obtains a meaningful portion of its revenues from all **five** utility fields: electric, natural and manufactured gas, telephone and water. AND . . . Citizens is the only multi-service operating utility that draws its strength from—while spreading its risks among—more than 200 communities in seven states from Maine to California and Washington to Arizona. Thus, it is the **only** operating utility that is **fully** diversified.

There is ever-increasing investor awareness that Citizens incorporates in one company not only diversification benefits—otherwise obtainable only through a multiple-issue portfolio—but also growth in terms meaningful to shareholders.



PROPERTIES SHOWING	1946	1947	1948	1949	1950	1951	1952	1953	1954
INCREASE	12	14	12	16	13	13	16	17	13
DECREASE	9	7	9	6	9	9	6	5	9

MANAGEMENT PREMISES

"Too frequently, growth and progress are confused. Growth *is* progress in the utility industry *only if*, along with growth in revenue, plant account or even enterprise total net income, there is also at least a concomitant and commensurate increase in earnings and dividends *per share.*

A utility management must, of course, consider the interests of its customers, its employees and its suppliers. Our record of (literally) enormous plant investment, increase in number of customers served, facilities added and equitable compensation is eloquent demonstration of our full awareness of our responsibilities. But the interests of these groups must be integrated with the interests of the owners of the enterprise to justify the use of the owners' capital in expansion.

Moreover, the presumed conflict among the interests of these groups is more superficial than real, in our judgment. No utility enterprise can long continue to provide more and better service to consumers or increased opportunity (and, therefore, increased compensation) to its employees, unless it can with regularity obtain capital at reasonable cost. In turn, a utility enterprise can continue to attract capital on favorable terms *only* if, by its record of the employment of such capital—its earnings record—it demonstrates that it has achieved, and will likely continue to achieve, for its shareholders. Thus, *fundamentally*, the interests of the consumer and employee groups are synchronous with those of the investor."

. . . from the Annual Report

Investors and their advisers interested in learning more about Citizens Utilities — including the consequences of its unusual stock dividend policy — are invited to write for a copy of the 38-page Annual Report booklet.

Citizens Utilities Company

ADMINISTRATIVE OFFICES: Dept. (E), Ridgeway Center, Stamford, Connecticut

GROWTH IN 1954:

Union Electric reports to 53,000 stockholders, 6,700 employes, more than 600,000 customers

STRONG GAINS IN 1954—Once again Union Electric showed an increase in net earnings over the previous year—$19,279,000 for 1954 as compared with $16,194,000 for 1953. This provided, after payment of preferred dividends, earnings for common stockholders of $1.65 per share in 1954 as compared with $1.35 in 1953.

Union Electric's operating revenues in 1954 totaled more than $114,000,000—an increase of more than $11,000,000 over 1953. With the sale of electricity exceeding 7,000,000,000 kilowatt hours—an increase of 4 per cent over 1953—electric revenues accounted for nearly $108,000,000 of total revenues.

COMMERCIAL AND RESIDENTIAL USE UP—The year brought a rapid expansion in sales to residential and small commercial customers—residential sales increasing 173,000,000 kilowatt hours, or 14 per cent, and small commercial sales increasing 66,000,000 kilowatt hours, or 9 per cent.

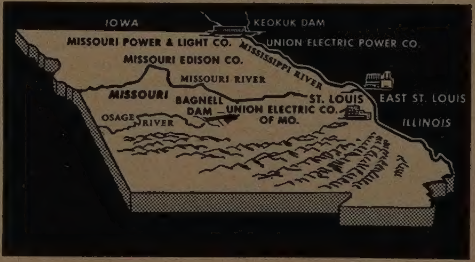
Following the general decline in industrial activity throughout the nation, sales to large commercial and industrial customers decreased 142,000,000 kilowatt hours, or 4 per cent. However, sales to these customers showed increases in both November and December of 1954 over those months of the preceding year.

NEW CUSTOMERS—In addition to the 13,400 electric customers gained with the acquisition of Missouri Edison Company on February 1, 1954, 12,100 new customers were added to System lines during the year. Nearly all of these new customers are owners of new homes with a large number of electrical appliances. The trend in residential use of electricity shows a strong upward surge (our residential customers used, on the average, 2,566 kilowatt hours in 1954 as compared with 2,337 in 1953—the largest single year increase in our history). New residential customers should continue to be an important source of revenue.

STRONG EQUITY POSITION—The Company's capital ratios continue to be conservative. Common stock equity exceeds 35 per cent of total capitalization. As a result of the North American Plan, the common stock equity of Union Electric was increased during 1953 and 1954 by approximately $40,000,000. This new capital will permit the financing of the System's construction program during the next few years with bonds and preferred stock and without the dilution of common stock earnings.

DIVIDENDS INCREASED—As a result of the Company's strong financial position and its improved earnings, the Board of Directors voted on January 10, 1955, to increase the common stock dividend to an annual rate of $1.40 from the previous rate of $1.20 per share, beginning with the dividend payable on March 31, 1955.

LOOKING FORWARD—*The general improvement in economic conditions and the industrial, commercial and residential expansion taking place in our service area may be expected to produce a substantial increase in our business during the years to come.*



UNION ELECTRIC COMPANY OF MISSOURI

Subsidiaries: *Union Electric Power Company • Missouri Power & Light Company • Missouri Edison Company Union Colliery Company • Poplar Ridge Coal Company • St. Louis & Belleville Electric Railway Company*

The Face Lifting of Mother Earth

Hidden thousands of feet beneath the earth's surface are the thick beds of ancient seas, prime source of crude oil. Here and there, gigantic buckles and warps have thrust parts of these seabeds up through the crust, thus providing clues to eager scientists searching for oil-bearing formations.

In this picture, a Sinclair geologist stands before an outcropping of sedimentary rock that once was the bed of a sea, but which has been slowly forced to the surface to change the face of Mother Earth.

In its hunt for oil, Sinclair has some 11,000,000 acres under lease in the United States alone. These acres are methodically worked over by crews of geologists, paleontologists and geophysicists. From their findings will come the oil fields of tomorrow, the fuel for automobiles not yet made, the energy for engines not yet designed.

SINCLAIR

A Great Name in Oil

SINCLAIR OIL CORPORATION • 600 FIFTH AVENUE • NEW YORK 20, N. Y.

It takes two kinds of POWER

. . . to keep them flying!

It takes tremendous power to fly faster than the speed of sound. It takes unfailing electric power, too . . . racing with the speed of light to operate the complex mass of electronic instruments and control devices packed within the sleek skin of modern military aircraft.

It's this vital kind of power that is provided by Federal airborne direct-current power supplies . . . rugged, dependable rectifier units made by Federal Telephone and Radio Company, division of IT&T . . . another of the many IT&T important contributions to aircraft efficiency and safety relied upon by major aircraft manufacturers.

IT&T

INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION
67 Broad St., New York 4, N. Y.